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ABSTRACT

This report summarizes a strategy evaluation study of the Personnel Preparation Program (a division in the federal Office of Special Education Programs). The Personnel Preparation Program is intended to increase the numbers of qualified special educators through grants to institutions of higher education and state education agencies. This study specifically examined the federal strategy of targeting its resources to areas of critical demand for personnel, both current and projected. The study evaluated a model, HIRES, which uses the number of special education teachers hired to fill vacancies for the 1986-87 school year to determine current and projected national demand for special education teachers. Major conclusions include the following: HIRES as a single measure does not provide an accurate measure of demand; each of the HIRES component measures is associated with critical factors for estimating demand for special education personnel; of the HIRES measures, NO HIRES (number of budgeted unfilled positions) appears to be the best single measure of critical and current demand for special educators; and predicting demand for teachers beyond 3 years is of limited value. Seven major recommendations are presented. A set of separately bound appendices include the executive summary of a companion goal evaluation report, the data collection protocol, and a list of interviewees. (14 references) (DB)

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Evaluation of Discretionary Programs Under the Education of the Handicapped Act: Personnel Preparation Program

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A project of American Institutes for Research
as subcontractor to COSMOS Corporation

Final Strategy Evaluation Report

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PREFACE AND ACKNOWLEDGEMENTS

This report describes the approach and results of an evaluation for the Personnel Preparation Program, one of five divisions in the Office of Special Education Programs (OSEP) in the U. S. Department of Education's Office of Special Education and Rehabilitative Services (OSERS). This effort was a strategy evaluation, the second phase of a two-part program evaluation, conducted by a study team from the American Institutes for Research (AIR). An earlier effort, conducted by AIR in the fall of 1986, was a goal evaluation which examined the program logic and the extent to which the program was achieving its goals.

The Personnel Preparation Program is the third of five discretionary programs being studied under an OSEP contract with COSMOS Corporation, with AIR participating as subcontractor. The COSMOS project director is Robert K. Yin; the AIR subcontract director is Peggie L. Campeau, who also serves as task leader of the evaluation for the Personnel Preparation Program.

Evaluations of other programs under this contract are for the Handicapped Children's Early Education Program, the Media Services/Technology Program, the Severely Handicapped Program, and Secondary Education and Transitional Services. All five programs operate under the Education of the Handicapped Act, as amended.

OSEP, through this contract, is utilizing a program analysis approach to assist federal program managers. The approach takes program managers through a sequence of steps in which they (1) clarify and agree on the performance objectives of their programs and on strategies for meeting them, (2) make explicit the assumptions that are implicit in their choices, and (3) evaluate and improve the plausibility and efficacy of these strategic choices.

A particular strength of the approach is that it combines the expertise of program managers, a work group of peers and staff, and an external evaluator (in this case, AIR), all of whom go through descriptive and analytic processes together. The forum for their deliberations is a series of structured work

group meetings, held once every four to six weeks throughout the evaluation process.

The work group members for the Personnel Preparation Program strategy evaluation are listed below. They helped to shape some of the study's products, and reviewed and critiqued others. Their knowledge of the Personnel Preparation Program and its policy context, and the time they invested to make sure this collective effort stayed on track, were essential to the pertinence and utility of the strategy evaluation process.

Work Group Members for the
Personnel Preparation Program Strategy Evaluation

Norm Howe
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In addition, Thomas Bellamy, Director of the Office of Special Education Programs, took particular interest in this evaluation. His review of the original study design and his recommendations for refinements provided the study with a practical focus.

While the authors alone are responsible for the final product, they would like to thank the work group and other individuals who were interviewed or provided documents and other information to the study team.

In particular, we wish to acknowledge the exceptional cooperation of key SEA and LEA personnel in the study sample, who participated in lengthy on-site

interviews with the study team. Their names and their associations appear in Appendix C of this report.

We also wish to acknowledge Donald H. McLaughlin and Robert J. Rossi of AIR for their contributions in helping the study team to assess the prospects of making accurate long-term projections of personnel supply and demand in special education.

The project was supported by funds from the U. S. Department of Education under contract number 300-85-0143. The content of this report does not necessarily reflect the views or policies of the U. S. Department of Education, nor does mention of trade names, commercial products, or organizations imply their endorsement by the U. S. Government.

EXECUTIVE SUMMARY

Important Note

This summary presents the highlights of a strategy evaluation for the Personnel Preparation Program; a related study, a goal evaluation, was conducted in the fall of 1986. Authorized under Part D of the Education of the Handicapped Act, the Personnel Preparation Program is administered by the Division of Personnel Preparation (DPP) in the Office of Special Education Programs (OSEP), a part of the federal Office of Special Education and Rehabilitative Services (OSERS), U. S. Department of Education.

This evaluation examined one of several strategies the Personnel Preparation Program pursues to achieve the objective of increasing the numbers of qualified personnel to provide education and related services to children and youth who are handicapped. That strategy is targeting its resources to areas of critical demand for personnel--both current and projected. The program implements this strategy primarily through the award of grants to colleges and universities, which produce the personnel who are specially trained to provide the services.

This study contributes to the literature on teacher supply and demand in special education. The reader is cautioned, however, that the study focused only on the demand side of the teacher supply-and-demand equation. And beyond that, the study focused only on one model for examining personnel demand. That model is based on HIRES: the number of special education teachers hired by a local school district to fill vacancies (i.e., budgeted, unfilled positions) for the 1986-87 school year.

OSEP defined the specific mission for the study team: to examine the utility of one model--a HIRES model--for determining the national demand (both current and projected) for special education teachers. OSEP and the study team fully recognize that any complete examination of teacher supply and demand must include an examination of the supply side. OSEP and the study team also recognize that numerous models might be posed and examined for their utility in determining teacher supply and demand, including models outside the supply-and-demand equation itself.

Because demand is an inherent part of the teacher supply-and-demand equation, the following summary begins with a statement of the more general problem of balancing the supply of trained teachers with the demand for their services. The statement provides the larger perspective within which this study of teacher demand must be viewed.

* * * * * *

BALANCING THE TEACHER SUPPLY-AND-DEMAND EQUATION IN SPECIAL EDUCATION: A VIEW FROM THE DEMAND SIDE

Balancing the supply of trained teachers across the nation with the demand for their services is a complex problem. When the supply or demand changes, shortages or surpluses result. To avoid these shortages or surpluses, educators at national, regional, and state levels attempt to predict future changes of supply and demand so they can systematically plan for the training and hiring of teachers. Such projections, however, require accurate and reliable data on the teaching profession, which at present do not appear to exist (Olson & Rodman, 1987). In addition, numerous factors influence the supply and demand for teachers, each one presenting problems that must be addressed.

Predicting the National Supply and Demand for Teachers

Having to predict the expected supply of teachers in the United States at a future time raises immediate questions:

- How many teachers will continue to teach from one year to the next?
- What is the age, experience, and subject area of teachers in the present pool?
- What are the various sources of potential teacher supply?
- How many graduates of teacher-training programs will actually enter teaching?
- How many teachers who left teaching will decide to return?
- What changes in the profession might attract more people to the field?
- Who can legitimately be counted as a "teacher"? What criteria determine "competence to teach"?

Anticipating the demand for teachers at a future time raises immediate questions as well:

- How many teachers will leave their positions, and for what reasons will they leave?
- What are the qualifications of individuals filling positions? Are they all fully qualified to teach, or do some lack the necessary requirements?
- How many students who are handicapped will enroll from one year to the next? What individual needs for service will they have?
- What are allowable teacher-pupil ratios in specific geographic and instructional settings?
- In what districts and geographic regions will the open positions be?
- What is the willingness and ability of districts to hire new personnel?
- What are the resources and the extent to which districts can recruit for personnel?
- What changes in the profession might cause more teachers to leave?

When they review the data from school districts, which is filtered through state departments of education to them, educational policymakers in Washington ask many questions about this data. They face the task of predicting the nation's supply and demand for teachers, so they can direct their limited federal dollars at the areas facing critical shortages.

- Do all school districts and do all states collect the same kinds of information on personnel?
- If they collect the same kinds of information, does it mean the same thing? Do they follow a standard set of definitions for the categories of personnel data?
- Do districts and states use similar data collection methods?
- How accurate and reliable are the data from district to district and from state to state?
- How does each district and each state differ in ways that affect the nature of their personnel data? What is the range of these differences?

- Are there any particular pieces of data from districts or states that might pinpoint the kinds of teachers that will be needed?

These lists of questions are by no means inclusive, but they suggest parameters for the kinds of information to be reviewed in assessing the magnitude and nature of the ever-changing supply and demand for teachers in the nation.

The Larger Context of Politics and Money in America

Education and, hence, projections of teacher supply and demand are ultimately shaped by the politics and economics of America. The voting public and politicians place relative value on education according to the amount of money they are willing to spend on it. That value goes up or down depending on who is holding public office. Even if accurate and reliable data were available to predict teacher supply and demand, the political and economic forces shaping education respond to a variety of factors unrelated to either education or children, and which are unpredictable.

The Uniqueness of Special Education

Compared with general education, measuring and predicting the supply and demand for teachers in special education in a national market is even more difficult (Sattler & Sattler, 1985). Figures for supply and demand depend on the specialization area of teachers within special education--learning disabilities, emotional disturbance, multiple handicaps, behavior disorders, developmental disabilities, and so on. And although the data on general education may not be complete, accurate, and consistent, the data on special education is even more sketchy.

Until the 1970s, local school districts did not even begin to address the needs of many students for special education services. Federal mandates supporting the educational and civil rights of handicapped children and youth--the Education for All Handicapped Children Act (Public Law 94-142) and Section 504 of the Vocational Rehabilitation Act (Public Law 93-112)--required school districts to address these needs. The federal and state funding that followed gave school districts increased ability to hire special education teachers to meet the new requirements.

The Personnel Preparation Program: The Federal Role in Training the Nation's Supply of Special Education Teachers

The Personnel Preparation Program was authorized in 1970 under Part D of the Education of the Handicapped Act (Public Law 91-230) for the purpose of "increasing the numbers of fully-qualified personnel that are available to provide education and related services to handicapped children and youth." The present program is the largest of the discretionary programs in the federal Office of Special Education Programs (OSEP). Appropriations for the program, exceeding $60 million each year in FY85, FY86, and FY87, support a large percentage of the new special education teachers being prepared nationally. The program uses its money to train teachers by awarding grants primarily to colleges and universities, which train the teachers to provide the services.

Because its money is limited, the Personnel Preparation Program must direct it to training teachers in "areas of critical demand--both current and projected." In order to do this, it must know what kinds of teachers are needed now and in the future. The program expects that its grants--available for the training of these needed kinds of teachers--will stimulate the colleges and universities to prepare more of them.

Grant applicants must present convincing evidence that the training they propose will address the areas of critical demand. Currently, however, the federal program lacks a baseline against which to evaluate this evidence. Federal data and information requirements for states under PL 94-142 for a Comprehensive System for Personnel Development (CSPD) and for annual pupil-personnel counts of local districts have failed to yield data and information of sufficient quality and utility to provide the program with a guide for funding decisions.

Increasingly, the Personnel Preparation Program is under pressure from the Office of Management and Budget (OMB) to show that its training grants are producing fully-qualified personnel to meet shortages in local school districts. It faces the same obstacles that policymakers, professional organizations, and researchers have all encountered in attempting to map the elusive terrain of teacher supply and demand. To date, no central, accurate, timely,

and generally-accepted data system is available for tracking personnel supply and demand in education--and in special education in particular. The problem is compounded with significant information gaps in the data that do exist, and with poorly articulated concepts and terminology.

An Examination of the Targeting Strategy:
The Search for a Single Measure of Demand for Teachers

OSEP requested the study team from the American Institutes for Research (AIR), subcontractor to COSMOS Corporation on a larger study of five discretionary programs under the Education of the Handicapped Act, to focus on the targeting strategy of the Personnel Preparation Program. The overall purpose of this "strategy evaluation" was to assist the program to improve its strategy of targeting resources to areas of critical demand for personnel--both current and projected.

OSEP asked the study team specifically to examine the utility of one measure for estimating demand for personnel. That measure was HIRES, meaning a count of the number of staff hired in a specified period. More precisely defined for the study, HIRES meant the number of special education teachers hired by a local school district to fill vacancies (i.e., budgeted, unfilled positions) for the 1986-87 school year.

To examine the utility of HIRES as a single measure of demand, data were collected from ten local school districts--five from each of two states in the country. Experts identified these states as having good data on special education personnel, and very well-informed staff who could provide insights on what it takes to build a good data system. The evaluation was a pilot effort, limited to two states--"the best"--and focused at the local level. It was limited to demand-side data and issues, while fully recognizing the difficulty of separating personnel demand from supply.

On-site interviews with special education administrators and personnel directors in the school districts provided information on the local planning and hiring process. In addition, interviewees provided planning documents, statistical reports, and summary data sheets, which were subsequently reviewed.

Interviews with state-level and regional-level administrators provided information on the state context for local planning and hiring.

The small sample size, and the considerable variations within it, permitted only limited statistical analysis of data from the sample.

The Findings of the Pilot Study

HIRES as a single measure does not provide an accurate measure of demand. It is made up of several measures, each of which must be examined separately.

Special education decisionmakers said the total number of teachers they hired (that is, the teaching positions they filled) for a year consisted of:

- the number of positions they filled with underqualified personnel (both those who had no certification at all and those who had incomplete certification)
- the number of new positions they filled with fully-qualified personnel
- the number of existing positions they filled with fully-qualified personnel
- the number of positions they filled with fully-qualified but less-than-quality personnel (that is, those who had full certification but whose overall "competence to teach" was questionable)

Each of the component measures of HIRES is associated with factors that must be taken into account when estimating current and projected demand for personnel in special education on a national basis.

Special education decisionmakers pointed out, for example, these key factors which were associated, respectively, with each component measure of HIRES (listed above):

- state certification requirements

  Tremendous variation exists in certification requirements across the states. For example, one state might have very stringent requirements for licensing its special education teachers and, therefore, have a resultant shortage of teachers in several areas. However, another state might

have less demanding requirements and, as a result, have an abundant supply of "qualified" personnel.

- student enrollments compared with state guidelines for minimum/maximum teacher-pupil ratios

  Guidelines for teacher-pupil ratios also vary greatly from state to state. For example, a state that allows a ratio of 1 teacher for every 28 pupils would have less demand for personnel locally than a state that allows 1 teacher for every 10 pupils.

- attrition/turnover of teachers

  Teachers leaving existing positions account for most job vacancies. Their specific reasons for leaving vary greatly. Even if states made a concerted effort to collect attrition data, making national estimates of demand would involve predictions of human behavior, which are difficult at best.

- appropriateness of college training program; individual competencies

  The quality of both training programs and individual teachers varies greatly.

What if a school district were unable to fill a vacant teaching position for which it had money to support? Another component measure of HIRES was apparent: NO HIRES was the number of budgeted, unfilled positions in a school district for a given year. This measure completed HIRES as a model for examining personnel demand.

As a single measure within the HIRES model, NO HIRES seems to offer the "cleanest" measure of critical and current (up to three years) demand for personnel in special education at the present time.

Certainly, special education decisionmakers would agree on the definition of a "budgeted, unfilled position." They point out, however, that the underlying reasons for NO HIRES must also be explored. Does the position remain vacant for a long time because of the geographic location or economic disincentives of the local school district? Does the individual district actively seek

qualified candidates, or is it passive in its recruitment efforts? And why? To be an appropriate target for federal program resources, the underlying reason must be possible to address through personnel preparation (i.e., training).

To provide a more adequate estimate of current demand, NO HIRES data should be supplemented with data on underqualified personnel. Local school districts consider that they have met their current demand for personnel only when they have filled their vacancies with fully-qualified teachers. Adding underqualified personnel to estimates of current demand requires further breakouts of data into:

- numbers of positions filled with uncertified personnel
- numbers of positions filled with not-fully-certified personnel

Predicting demand for teachers beyond three years is of limited or no value at the state and local levels, according to the special education decisionmakers sampled in this study. It is at the national level that it becomes important, although the prospects for making accurate long-range (beyond five years) projections of demand for special education personnel are dismal.

Estimating demand for personnel--current or future--also requires an accounting of factors that contribute to "unrevealed demand." Such factors include state use of unduplicated counts of children, accounting only for their primary handicapping condition and not any secondary conditions they might have; state limitations on the number of children that can be identified within a particular handicapping category; the overall ability of a district to hire, based on the amount of state and federal funding it receives.

What the Quantitative Data from the Study Sample Revealed

Based on extrapolation of figures in the Digest of Education Statistics (1987), the study sample appeared to be representative of the nationwide teacher-pupil ratio (17.8) and the nationwide average percentage of pupils counted as requiring special education services (11.2%). The most striking

pattern was the difference between the two states' special education teacher-pupil ratios. The difference does, in fact, reflect the official guidelines of each state for class size maximums.

The quantitative data on each of the components of HIRES did not provide much information on the areas of current and critical demand for personnel across the ten districts in the study sample. Viewing demand in terms of the HIRES model (demand = number of budgeted, unfilled positions + number of positions filled with underqualified personnel), the data revealed:

- Two of the ten districts had budgeted, unfilled positions--

  1 teacher of the trainable mentally handicapped

  1 teacher of the autistic

- Three of the ten districts had positions filled with underqualified personnel--

  1 uncertified teacher of the behaviorally and emotionally handicapped

  5 not-fully-certified teachers: 3 teachers of the emotionally disturbed and 2 teachers of the learning disabled

  1 not-fully-certified teacher of the emotionally disturbed

Of the the total number of HIRES (182) across the ten districts for the 1986-87 school year, the current demand for teachers was 9 (2 budgeted, unfilled positions + 7 positions filled with underqualified personnel). The conclusion from these figures is that there is no major problem, and, therefore, no critical demand. However, the quantitative data alone is misleading. Qualitative data from the local districts provided additional information on teacher demand that was essential for identifying shortages.

What the Qualitative Data from the Study Sample Revealed

Anecdotal data obtained from local special education decisionmakers provided additional and important information for identifying shortages in the sample districts:

- Although districts were able to fill most of their positions, local decisionmakers identified areas of "shortage" as positions that were "hard-to-fill," and as personnel who were "difficult-to-find," requiring extensive recruiting. Typically, such shortages included:

  teachers of the emotionally disturbed. (Teacher turnover in this area is three years on the average due to the tremendous demands of the position.)

  teachers of speech and language. (Some districts consider speech and language to be a special education teacher position; some consider it to be a related services position.)

  occupational therapists and physical therapists. (Almost unanimously, the districts in the sample identified OTs and PTs as their most difficult-to-find personnel. These are related services positions, not special education teacher positions.)

- Because of the age of their special education teaching staff, several districts see sizable shortages coming within the next three years, especially if early retirement bills are passed by state legislatures.

- Because of newly-increased state certification requirements in the multicategorical program area, close to half the staff in several districts will become "underqualified" next year.

Conclusions

The HIRES model offers no single measure for estimating demand. What the HIRES model does offer is a logical, organizing framework for further examination of personnel demand in special education. Interpreting national data on demand requires understanding the factors that influence both demand and supply. This study has provided a means by which the federal program can carry out future research and data gathering on personnel demand, organized logically by the components of demand and the factors that influence it. Because very little is known about personnel supply, another study (such as this pilot study of demand) will have to identify the components of supply and the factors that influence it.

Local school districts are very able to specify their current and critical demand for personnel. However, federal data requirements from states and aggregated data do not provide a view of teacher demand with the clarity, accuracy, and timeliness of that in local districts. Because these federal requirements have not provided useful data for predicting teacher supply and demand in a national market, they may be unjustified. Certainly, there is justification for seeking a more efficient, economical, less burdensome alternative. This study also suggests that any quantitative data on teacher demand must be supplemented with qualitative data from local school districts where the demand originates.

Targeting federal training resources on the basis of short-term projections is questionable. Data ages fast, and local district data is well out of date by the time it reaches the federal level. Short-term projections also fall short of the lag time in the system: the federal funding cycle starts two years ahead of awards; and grantees' training programs take three to five years to produce trained personnel. The prospects for making accurate long-term projections of teacher supply and demand, however, do not look good. States acknowledge difficulties in using historical data for forecasting beyond three years. And, ultimately, the unpredictable nature of politics and funding--major forces in determining the market for special education teachers--make market projection perilous. Given this context, estimating nationwide demand can still be meaningful, but only within the range of time that political forces are unlikely to have great effect. These projections, based on current measures of demand and demographic projections, can serve some of the purposes of a strategy for targeting resources to areas of critical demand for personnel.

The business of special education personnel is to provide services that meet the needs of children and youth who are handicapped. Counts of personnel, and the politics and funding that shape demand, may obscure these needs. Finally, this study can only raise the question: Is there a viable way of basing estimates of personnel demand on the needs of children and youth for special education and related services?

Recommendations

The following recommendations were offered to the Personnel Preparation Program for improving its strategy of targeting resources to areas of critical demand for personnel--both current and projected:

1. Decide the components of demand that the federal program can address and match data collection to this policy objective. Using a HIRES model, the study suggested that current and critical demand for personnel in local school districts was represented by budgeted, unfilled positions and the positions filled with underqualified personnel. At a minimum, then, the federal program can target its resources to meet this demand.

   Quantitative data, however, are insufficient for identifying personnel shortages. Qualitative data are also required to provide a more accurate description of the shortages, and to decide whether or not they can be addressed by training.

   Federal reporting requirements for states should be drastically reduced or abandoned altogether if the data are not useful for targeting or other OSEP purposes.

2. In the absence of useful data for predicting teacher supply and demand in a national market, use inexpensive methods that obtain a "quick fix" on areas of current and critical demand. Small-scale surveys of a representative sample of local school districts, high-producing institutions of higher education, and states with good data and data systems might yield a profile of local, regional, and national demand for personnel as good as one provided by a more costly, large-scale, definitive study.

3. Plan data collection in collaboration with SEAs, LEAs, IHEs, and major professional organizations. Each group plays an important role in balancing the teacher supply-and-demand equation. A data collection effort that serves the purposes of important interests will be more efficient.

4. Conduct feasibility studies of statistical means for improving the utility of available data.

5. Agree on definitions of terms that the federal government uses in statements about targeting critical areas of demand for personnel. Consistent use of a standard set of definitions for terms commonly used in relation to personnel supply and demand would facilitate understanding of data collection forms, grant announcements, internal planning documents, program regulations, and public statements.

6. Work closely with the national Clearinghouse on Careers and Employment in Special Education, and support new studies (when appropriate) to systematically build a comprehensive database that is useful for targeting to the demand for personnel. This study provided an organizing framework for examining personnel demand in special education. The framework can be used to coordinate further study by OSEP/DPP and the Clearinghouse. A formal agreement of the working relationship might establish the federal program as an important client, one who stands to benefit from the database and expertise the Clearinghouse will develop.

7. Seek a viable and acceptable way to base estimates of personnel demand on the needs of children and youth for special education and related services. Ideally, the needs of children and youth for special education services should define the demand for personnel.

The full report of the strategy evaluation discusses each of these recommendations in detail. The first five recommendations are for immediate implementation; the last two are for implementation over the longer term.

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I. Background

Targeting areas of critical demand for personnel--both current and projected--is one of several strategies the Personnel Preparation Program pursues to increase the numbers of specially trained persons who are qualified to provide education and related services to children and youth who are handicapped. OSEP management and staff singled out this particular strategy for further study in the second phase of a two-part program evaluation. The initial phase, which was called a "goal evaluation," documented the federal program's goals and logic, and examined the extent to which specific strategies were being implemented through grant activities in the field and through program administration at the federal level--and with what results (Campeau, Appleby, and Stoddart, 1987).*

Although the conclusions of the goal evaluation were generally positive about the likelihood of achieving measurable progress toward federal program objectives with current strategies, recommendations in the final report (op. cit.) pointed out respects in which particular strategies should be re-evaluated or re-defined, noted the need for evaluative data to fill information gaps, and called attention to unresolved programmatic issues. The concluding chapter of the final report suggested a number of candidate topics for further study, each pertaining to one of the strategies the federal program is currently using.

The OSEP Director and members of the review group considered these suggestions at a briefing on findings from the goal evaluation. They expressed a strong preference for the second phase of the study, called a "strategy evaluation," to develop information the federal program could use to improve its strategy of targeting critical demand for personnel.

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* Appendix A contains the Executive Summary for the goal evaluation of the Personnel Preparation Program.

What the Coal Evaluation Concluded about the Federal Program's Strategy for Targeting Critical Demand for Personnel

The Personnel Preparation Program expects that directing program resources to training in areas of critical demand for personnel (both current and projected) will stimulate the field to prepare more of these types of personnel. The federal program's targeting strategy includes these elements: (1) setting priorities, (2) announcing priorities and selection criteria annually for funding competition, and (3) reviewing and awarding grants.

Nearly all grantees are institutions of higher education (IHEs) and state educational agencies (SEAs), but mostly IHEs--the supply side of the program--the producers of personnel with the specialized training required to provide special education and related services to children and youth who are handicapped.

Grant applicants must present convincing documentation to demonstrate the objectives, focus, and substance of the activities they propose to implement if their application is selected for funding. As motivation to do this, the evaluation criteria allot 25 points (out of 100 possible in FY 1986) to the applicant's "statement of needs."

The 56 grantees in the sample for the goal evaluation used data from a wide variety of sources to make a strong case for their proposed focus. The fit was very close between the areas of need they documented and the programs and models they developed, or the training they delivered.

However, the goal evaluation concluded that while the targeting strategy was well-articulated and orchestrated by the federal program and implemented in good faith by grantees, it was not responsive to mounting pressures--especially from the Office of Management and Budget (OMB)--to demonstrate that its training grants were producing personnel to meet the demand (i.e., shortages that local school districts are experiencing in the supply of qualified personnel).

Specifically, the federal strategy for targeting critical areas of demand for personnel lacks a satisfactorily functioning system or mechanism to provide

a baseline against which to evaluate the supply side's documentation of such areas of demand in their initial and continuation applications. Requirements of states under PL 94-142 for Comprehensive Systems for Personnel Development (CSPD) and for annual pupil-personnel counts have failed to yield data and information whose quality and utility are sufficient to provide the Personnel Preparation Program with a demand-side profile to guide funding decisions. Grantees (representing a supply-side perspective) say that CSPD information and states' annual counts are least useful for documenting needs for highly specific personnel specialties, and for projects serving regional and national interests or needs (such as those submitted under the Leadership competition). Federal program staff agree with this observation.

Complexity of the Problem

Policymakers, program constituents (professional organizations and grantees), and researchers have all encountered obstacles in attempting to map the elusive terrain of personnel supply and demand. To sum up broadly:

- The intransigent problem of what constitutes critical personnel demand and how to measure it precludes the ability to focus resources on satisfying it.
- There is no central, accurate, timely, and generally accepted data system for tracking current and projected manpower supply and demand in education--and in special education in particular. Nor is there a generally accepted analytic model that specifies data requirements for such a system.
- Politics and money have an inordinately large effect on state and local estimates of demand for personnel.
- These and other "market forces" have been ignored in past studies of teacher supply and demand.

There are two sides to consider in the market for special education personnel: the supply side and the demand side. On the supply side are personnel preparation providers, such as institutions of higher education, and the internal and external factors that influence their capacity to produce qualified personnel. On the demand side are consumers, such as local education agencies (LEAs), and the internal and external factors that affect their acquisition of personnel. The anticipated demand for particular kinds of

special education personnel, and the expected supply of those who will be available to fill that demand, are the basis for projecting shortages (or surpluses) of personnel.

In a freely functioning economic market, price fluctuation is the mechanism for maintaining parity between supply and demand. Demand for goods or services in short supply drives prices up and thereby attracts new suppliers. Prices fall when supply exceeds demand, and suppliers leave the market. In the market for educational personnel, however, there is question as to whether this economic theory of equilibrium holds. Some analysts say the institutional rigidity of education permits little, if any, flexibility of salaries in response to changes in supply and demand (Sattler & Sattler, 1985), or that it is unlikely teacher salaries will ever increase by the estimated 40% necessary to make teaching economically competitive with careers that attract "reasonably bright college graduates" (Hawley, 1986). Rather than provide additional funds to LEAs to finance salary supplements to special educators who are in critically short supply, states may instead redefine handicapping conditions (i.e., make definitions more restrictive to exclude certain children who would otherwise be eligible for special education services under broader definitions) and/or relax requirements for certification and the policies for employing underqualified personnel (McLaughlin, Smith-Davis, & Burke, 1986; Schofer & Davis, 1986; and Smith-Davis, Burke, & Noel, 1983). Other analysts perceive that the market does seek and find equilibrium, and does so through the normal market mechanisms (Darling-Hammond, 1987; Olson & Rodman, 1987; Roth, 1986; and Yates, 1987).

The implication for model builders is that they must allow for various "market adjustment mechanisms" to work in analyzing supply and demand, including the incentives and disincentives of teaching that affect the individual's decision to teach.

Further complicating the problem are poorly articulated concepts and terminology and significant information gaps in the data that underlie disagreements over the magnitude and character of personnel supply and demand in education. For example, analysts point out that reliable and useful data are seriously inadequate or unavailable on attrition, turnover, classrooms staffed

by personnel who are less-than-fully qualified, movement within the system (where newly-hired teachers come from, where teachers go who leave the district but continue to teach), and so on.

Determining these parameters and complexities of the larger problem provided the means for focusing the strategy evaluation on a piece of the problem.

Setting the Boundaries for the Strategy Evaluation

With others working on pieces of the problem, some from the model development end, others from the data end, what useful information for policymaking could the strategy evaluation provide with its modest budget and before the end of FY 1987? Should and could it focus on the supply side, the demand side, or both sides of the market for special education personnel?

After deliberation, the work group and the study team proposed to address these questions in the strategy evaluation:

- What kind of information is presently available that may be potentially useful for establishing whether or not shortages exist?
- How accurate and reliable are these data?
- What difficulties might be encountered if such data were required for a national (central) data system?
- How might these difficulties be addressed?

The work group also agreed that the strategy evaluation would be a pilot effort in a couple of states reputed to have exceptionally good data for special education personnel, and exceptionally competent staff who could provide knowledge and insight on what it takes to build a good data system. Given the limited resources available for the pilot study and the complexity of the larger problem (discussed above), the work group agreed that the emphasis of the study would be on personnel demand—the side of the supply-and-demand equation that the program knew least about.

The study team and representatives of the work group met with the Director of the Office of Special Education Programs (OSEP) and members of the OSEP review group to brief them on plans for the strategy evaluation. OSEP suggested that the focus be narrowed from "whatever data are available" to one potential estimate of personnel demand--and that this be "HIRES." Generally, for this study "HIRES" means a count of the number of relevant staff hired in a specified period.

OSEP's preference reflected a shift to numbers that were not soft, and that were easy to count with accuracy and reliability. What light could the strategy evaluation shed on the potential utility of such a measure as "HIRES" for establishing current and projected demand for personnel? The next chapter describes the resulting design for the strategy evaluation.

Definitions of Terms for this Report

Taking seriously the criticism that unclear and inconsistent use of terms contributes to problems of discussing and assessing the complexities of personnel demand (and supply), the pilot study established the following working definitions:

- Demand for personnel is synonymous with the "need to hire." It is used in the sense of "supply and demand" from the field of labor economics.

- Need refers to the requirements of children and youth for special education and related services.

  This report differentiates between "need" for services (by those who are handicapped) and "demand" for teachers (the "need to hire" personnel).

II. The Strategy Evaluation Design

Purpose, Scope, and Rationale for the Study

The preceding chapter closed by describing the partnership of the study team, the work group, and OSEP management in setting the boundaries for evaluating one strategy of the Personnel Preparation Program: targeting current and projected demand for personnel. They agreed to the following overall approach.

- The strategy evaluation would be a pilot effort in two states, and would focus at the local level.
- While recognizing the difficulty of separating personnel demand from supply, all partners agreed to limit the pilot study to data and issues of demand.
- A specific focus would be to assess the potential utility of data on HIRES for developing current and projected estimates of demand for personnel.

Conceptually, the study's purpose would require improving the construct validity of HIRES and articulating its complexities. For example, it would be important to identify and define factors that might need to be known and accounted for in a model of personnel demand in which HIRES was the single measure of demand.

In addition, potent bureaucratic and contextual conditions that might be hard to quantify could confound HIRES as a valid and reliable measure of demand. For example, undesirable geographic locations or stringent state certification requirements in particular specialty areas might make it more difficult for a local district to recruit personnel to hire.

Finally, if there were better proxies for personnel demand than HIRES, the strategy evaluation would have to be alert to these candidates.

Practically, information on HIRES, and the variables likely to influence it, would have to be available through channels that federal-level policymakers could access. And it would have to be available in a form that was economical

to retrieve, aggregate, and analyze. Thus, the strategy evaluation would have to determine reporting routines for each variable, and estimate the accuracy, reliability, and cost of obtaining this information.

Evaluation Questions that the Pilot Study Addressed

To accomplish the above purposes, the strategy evaluation addressed these questions:

1. Is HIRFS an accurate estimate of the demand for personnel? If not, what other variables and conditions are associated with hiring that might need to be specified and controlled for?

2. What quantitative data are available, back several years, on HIRES and related variables?

3. Are these data accurate and reliable?

4. What refinements do the data suggest for measuring personnel demand?

5. What are reporting routines and costs for various data components?

6. What difficulties are likely to be encountered if such data were required to implement a federal strategy for targeting critical demand for personnel? How might these difficulties be addressed?

Selection and Nature of the Study Sample

The sample for the strategy evaluation consisted of two state education agencies, two intermediate (or regional) education agencies, and a total of ten local education agencies--five from each state. This sample represented the demand side of the personnel supply-and-demand equation, although the SEAs also had linkages with the supply side, especially with state-supported colleges and universities that train special education personnel.

Criteria and assumptions that guided sample selection. Only those states that certify or endorse in specialty areas (i.e., categorical states) were considered. Thus, a first assumption was that targeting critical demand for personnel requires data that are broken out by category of personnel and/or specialty area.

A second assumption was that addressing the evaluation questions would require access to good data and to people with expertise and practical insights on what it takes to build an adequate data system. A safe assumption was that good data and good staff go together. Therefore, a second selection criterion was the known quality of data and data systems in the candidate state.

Procedures for selecting SEAs for the study sample. The study director obtained SEA nominations from two consultants who had recently reviewed the status of SEAs' special education personnel data systems.* Each consultant independently nominated four or five states that met the above criteria, and identified an SEA contact. The study team called each candidate SEA to obtain information about features of their data systems that were especially relevant for the pilot study. For example, did the SEA have data on budgeted, unfilled positions by category or specialty area, and could the data be disaggregated to the LEA level? Did the SEA have data back several years that could be compared with current data? What did the SEA do to help LEAs fill budgeted vacancies for special education and related services personnel? What steps were underway to improve the statewide personnel data system?

Most SEA contacts supplemented their responses to the above telephone queries by sending pertinent documents that helped the study team narrow the choice to two states and three backup states (in case a state declined to participate).

The work group concurred with the team's recommendations, and the two states selected as "first choice" agreed to participate in the pilot study. Coincidentally, they were the only two states that appeared on both consultants' lists of nominees.

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* The two consultants were Dr. Judy Smith-Davis and Dr. Richard Schofer, whose work was referenced in the first chapter of this report.

Procedures for selecting LEAs for the study sample. Each of the two SEAs suggested at least seven LEAs that:

- met the "good data" criterion
- ranged from low to high for per-capita hires (number of special education personnel hired to fill vacancies for the current academic year divided by total enrollment)
- ranged from small to large for total enrollment
- secondarily, represented some of the variability that exists in the state for factors that affect the difficulty or ease of meeting the demand for personnel (e.g., geographic location, population mobility, salary schedule, and so forth)

Each SEA representative restricted his or her recommendations to LEAs whose administrators would regard the pilot study as worthwhile, who knew about local planning and hiring processes for special education personnel, and who could explain local data systems and policies that were pertinent to the study's objectives. Two intermediate educational units were included in the study because one of the states had a regional organization involved in the hiring of local personnel. Study staff obtained information from representatives of these units for background only, in order to understand the intricacies of regional/local hiring.

The study team narrowed the selection to five LEAs from each state, according to the LEA's ability to participate, given the study schedule. The schedule required that data collection occur during May and June--a particularly busy time for LEAs.

Framework for Examining Personnel Demand in the Pilot Study

HIRES by itself might be a composite of several measures; the inquiry would have to go beneath the label and examine the local hiring process to identify these measures. Moreover, if HIRES were a proxy for demand of special education personnel, very likely there are other independent measures of special education staffing; the inquiry would have to determine how HIRES is related to these. At the LEA level, examples of such measures include: size of enrollments by groups of students with particular handicapping

conditions; minimum/maximum guidelines of states regarding teacher-pupil ratios; attrition or turnover rate; state certification requirements.

It would also be important to identify conditions that potentially confound HIRES as a valid and reliable estimate of demand. Examples of such conditions include: federal and state policies that affect the ease or difficulty of finding qualified personnel; the status of "child find" activities; competitiveness of salaries for new hires; the nature and extent of recruitment activities; enrollment trends; economic conditions; population movement into or out of an area; geographic location, and so forth. These bureaucratic and contextual conditions might be hard to quantify, but they are nevertheless important for understanding personnel supply and demand in special education.

These and other factors appear in Table 1 on the next page. Table 1 shows the framework for examining the demand for special education personnel in the pilot study, and represents the thinking of experts and practitioners who have studied personnel supply/demand issues at local, state, and national levels. (These sources were referenced in the preceding chapter.)

Some evaluation questions for the pilot study required quantitative information. The far left column of Table 1 lists several types of quantitative data relevant to hiring. Most are candidates for independent variables in an analysis of personnel demand that uses HIRES as the dependent variable.

Answering other questions of the pilot study required qualitative information such as that in the far right column of Table 1. Some topics, such as those listed as "other significant influences on the supply/demand situation in the state or locale," may account for important influences on hiring that are not captured adequately by existing quantitative data. Other topics in the list concern reporting routines for the quantitative data.

The framework guided but did not confine data collection. The goal was to determine what summary data were available on HIRES and the factors that accounted for hiring (or not hiring).

Table 1

Framework for Examining Personnel Demand in the Strategy Evaluation

QUANTITATIVE DATA	Sources From Which The Study Team Sought This Information*		QUALITATIVE DATA	Sources From Which The Study Team Sought This Information*	
Examples of data to be obtained if relevant to the local personnel planning and hiring process	SEAs (N=2)	LEAs (N=10)	Examples of topics to be explored with interviewees	SEAs (N=2)	LEAs (N=10)
Hires • N newly-hired special education staff as a percentage of N employed, by category and handicapping condition • N full-time equivalents (FTEs) required and N FTEs hired, by category and handicapping condition • Sources (out-of-district transfers; new graduates of IHEs in state, out of state; continuing but newly-qualified personnel, etc.) • Trends over past few years	**	X	• Decision process for meeting staffing needs in special education • Reporting: - who reports what to whom and when, for various data components - for each component, how collected, computed, verified, updated - cost/resources required to do this - likely problems in obtaining reliable statistics of these types; possible solutions - opinions about what data should be reported, and what the Federal Government should do with it	X	X
Qualifications of New Hires • N certified and N with less-than-full certification, by category and handicapping condition • N qualified in one area but serving in another • Trends over past few years	**	X	• Likely future trends for data in far left column	X	X
Enrollments and Staffing • Unduplicated child count data, by handicapping condition (PL 94-142) • Percentage of handicapped in total school population by type of handicapping condition • N special education personnel employed, by area and FTE • Trends over past few years	X	X	• Recruitment: - factors that helped or hindered efforts to recruit new hires (certification requirements, economic and geographic factors, classroom working conditions) - likely future trends • Other significant influences on the supply/demand situation in the state, and implications for a national data system, e.g.: - definitions used for handicapping conditions - student eligibility criteria for services - multi-categorical programming - cooperative arrangements - contracting for services - changing priorities - other	X	X
Teacher-Pupil Ratio • size of ratio • data elements • trends over past few years	**	X			
Faculty Attrition • magnitude • data elements • patterns and trends • sources (e.g., retirement, out-of-district transfers)	**	X			
Vacancies • N positions budgeted and unfilled, by category and handicapping condition • N positions recruited for, by category and handicapping condition • sources (e.g., program expansion, loss of personnel) • data elements • patterns and trends	**	X			
Budget • for special education teachers • per handicapped student • funding formula • trends over past few years	X	X			

* The study team collected only readily available quantitative data, and tried to obtain the data from existing documents, records, and statistical reports before and during site visits.

** Presumed that SEA database was linked to individual LEAs

Data Collection Procedures and Sources

The study team collected most of the information during on-site visits to the SEAs and LEAs in the pilot study sample. In preparation for visits, the team reviewed preliminary information obtained by phone and from documents that the sites sent in advance. Once on site, the team interviewed staff who were responsible for data collection, analysis, reporting, and management, and who were in a position to comment in depth on the personnel planning and hiring process and on data and factors that affected hiring, including bureaucratic and contextual factors. Other information was obtained from documents, records, and statistical reports. To avoid placing undue burden on LEA staff at pilot study sites, the team did not request them to prepare new statistical summaries.

Data collection protocols. The study team used the topic outlines in Appendix B as guides for interviewing state and local staff. Tables 2 and 3 provide more detail on numbers of interviewees, their administrative units, and their generic titles.

Data Analysis Approach

A variety of analytic activities were necessary to process the quantitative and qualitative data that the pilot study yielded. These activities included:

- developing a generic model of the local planning and hiring process
- distinguishing among "levels of demand" that the local planning and hiring process revealed
- identifying factors associated with each "level of demand" that might need to be known and controlled for in a model of personnel demand
- identifying disposing conditions (both contextual and bureaucratic) that can have an important effect on hiring, whether or not they are measurable
- estimating in general terms the accuracy, accessibility, and the ease of collecting and processing such data

Table 2

Educational and/or Administrative Units
Represented in the Study Sample

NOTE: Numbers in parentheses are tallies of the SEA and LEA interviews completed by the study team.

- STATE 1

SEA Level

Division for Exceptional Children, Support Services (2)

Division of Teacher Education, Personnel Services (1)

Division of Student Information Management, Controller's Office (1)

Information Center, Controller's Office (1)

LEA Level

School District A (1)	Exceptional Children's Program
School District B (2)	Exceptional Children's Program; Personnel, Evaluation, Certification
School District C (1)	Exceptional Children's Program
School District D (2)	Exceptional Children's Program; Certificated Personnel
School District E (1)	Exceptional Children's Program

- STATE 2

SEA Level

Bureau for Exceptional Children, Division for Handicapped Children and Pupil Services (3)

Bureau for Teacher Education, Certification, and Placement; Division for Instructional Services (3)

Intermediate Level

Cooperative Education Service Agency
Special Education Administration/Supervision (3)

Table 2 (continued)

LEA Level

School District A (2)	Special Services; Personnel
School District B (2)	Program Development, Exceptional Education Division; Human Resources
School District C (1)	Pupil Personnel Services
School District D (2)	Special Education; Personnel
School District E (1)	Administration

Table 3

Tally of SEA/LEA Interviews
by Generic Titles of Interviewees

- STATE 1

SEA Level

Consultant/Coordinators (3)

Project Manager (1)

Center Director (1)

LEA Level

Program Directors (2)

Program Coordinators (2)

Program Supervisor (1)

Personnel Directors (2)

- STATE 2

SEA Level

Bureau Chief (1)

Program Supervisors (2)

Consultants (2)

Office Director (1)

Intermediate Level

Program Director (1)

Assistant Program Director (2)

LEA Level

District Administrator (1)

Program Director (3)

Program Coordinator (1)

Assistant Superintendent (Personnel) (1)

Personnel Director (1)

Staffing Specialist (Personnel) (1)

- identifying specific problems and possible solutions in obtaining and utilizing available data

- developing a statistical summary of the quantitative data obtained from pilot sites

The extremely small sample size, and the considerable variations within it, permitted only limited statistical analysis of data from the LEA sample. Nor were SEA data files that linked data elements to individual LEAs available for analysis by the study staff.

Intended Audiences for the Strategy Evaluation's Findings and Recommendations

The findings, conclusions, and recommendations in the remaining chapters of this report have a primary and secondary audience. The primary audience is OSFP management and the director and staff of the Division of Personnel Preparation. The secondary audience is state education agencies. Both audiences will be interested in what the local planning and hiring process revealed as elements of personnel demand, the utility of existing data for determining current and future demand for personnel, and steps that can be taken to improve the federal program's ability to define, measure, and target resources to relieve critical shortages of personnel in special education.

III. Findings and Conclusions: HIRES as a Starting Point for Examining the Demand for Personnel

The study design established HIRES as a potentially useful estimate of personnel demand to be investigated by the study. It broadly defined HIRES as a count of the number of relevant staff hired in a specified period. For practical matters of collecting data from the study sample, the study team defined HIRES more precisely as the number of special education teachers hired by an LEA to fill vacancies (i.e., budgeted, unfilled positions) for the 1986-87 school year. This, then, was the definition the study team used when they asked local special education decisionmakers for their "total number of hires."

The study design also proposed that HIRES may not be a single measure but instead a composite of several measures. Thus, the inquiry would have to go beneath the label to identify those components. To do so would involve an examination of the local personnel planning and hiring process.

Moreover, the study design suggested that if HIRES were to be a proxy for personnel demand in special education, then it must correlate with other independent measures of special education staffing. Thus, the inquiry would have to determine how HIRES was related to these other factors. (Such factors include teacher attrition/turnover; student enrollments compared with state guidelines for minimum/maximum teacher-pupil ratios; and state certification requirements.)

The following sections describe the findings of the study team, using HIRES as a starting point for examining the demand for personnel in special education.

The Local Personnel Planning and Hiring Process

Figures 1 and 2 provide generic models of the LEA personnel planning and hiring process. They portray a pattern common across all LEAs in the pilot study sample, which the study team was able to identify from discussions with local special education decisionmakers (i.e., district special education

FIGURE 1

GENERIC MODEL OF LOCAL PLANNING AND HIRING PROCESS FOR EXISTING POSITIONS

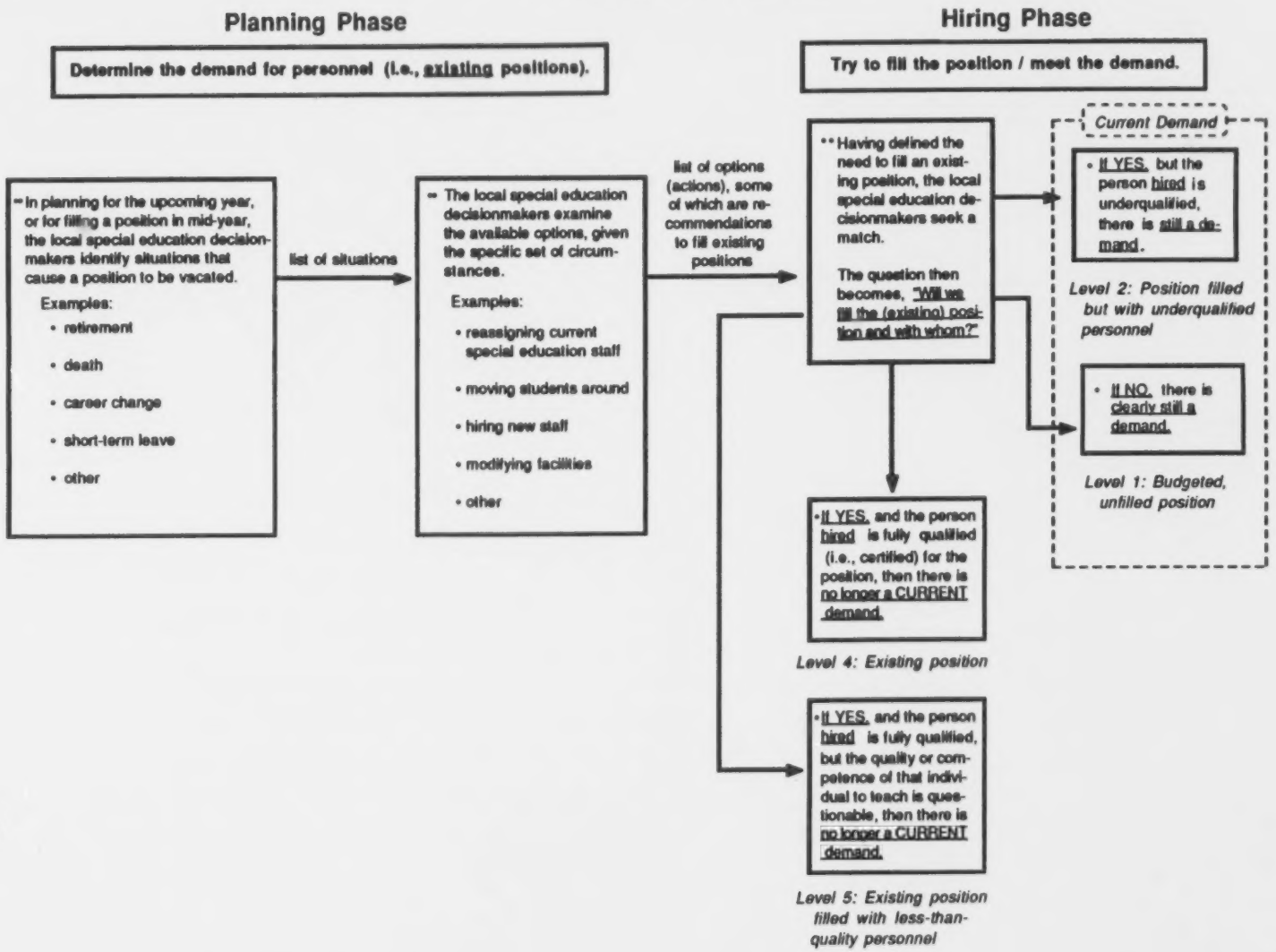
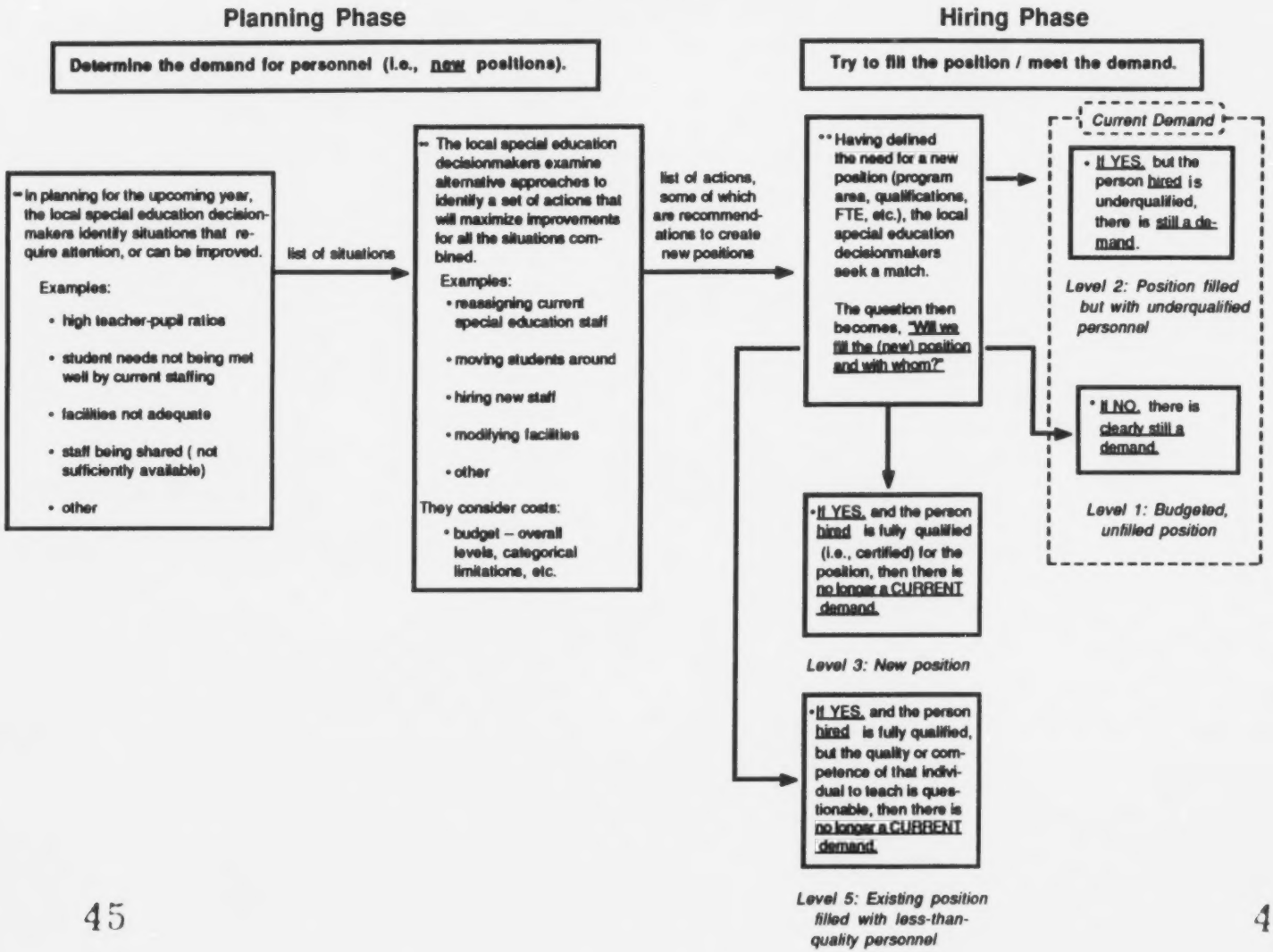

Planning Phase
Determine the demand for personnel (i.e., existing positions).
- In planning for the upcoming year, or for filling a position in mid-year, the local special education decisionmakers identify situations that cause a position to be vacated.
Examples:
• retirement
• death
• career change
• short-term leave
• other
list of situations
- The local special education decisionmakers examine the available options, given the specific set of circumstances.
Examples:
• reassigning current special education staff
• moving students around
• hiring new staff
• modifying facilities
• other
list of options (actions), some of which are recommendations to fill existing positions
Hiring Phase
Try to fill the position / meet the demand.
** Having defined the need to fill an existing position, the local special education decisionmakers seek a match.
The question then becomes, "Will we fill the (existing) position and with whom?"
Current Demand
• If YES, but the person hired is underqualified, there is still a demand.
Level 2: Position filled but with underqualified personnel
• If NO, there is clearly still a demand.
Level 1: Budgeted, unfilled position
• If YES, and the person hired is fully qualified (i.e., certified) for the position, then there is no longer a CURRENT demand.
Level 4: Existing position
• If YES, and the person hired is fully qualified, but the quality or competence of that individual to teach is questionable, then there is no longer a CURRENT demand.
Level 5: Existing position filled with less-than-quality personnel

FIGURE 2

GENERIC MODEL OF LOCAL PLANNING AND HIRING PROCESS FOR NEW POSITIONS


Planning Phase
Hiring Phase
Determine the demand for personnel (i.e., new positions).
Try to fill the position / meet the demand.
In planning for the upcoming year, the local special education decision-makers identify situations that require attention, or can be improved.
Examples:
• high teacher-pupil ratios
• student needs not being met well by current staffing
• facilities not adequate
• staff being shared (not sufficiently available)
• other
list of situations
The local special education decisionmakers examine alternative approaches to identify a set of actions that will maximize improvements for all the situations combined.
Examples:
• reassigning current special education staff
• moving students around
• hiring new staff
• modifying facilities
• other
They consider costs:
• budget – overall levels, categorical limitations, etc.
list of actions, some of which are recommendations to create new positions
Having defined the need for a new position (program area, qualifications, FTE, etc.), the local special education decisionmakers seek a match.
The question then becomes, "Will we fill the (new) position and with whom?"
Current Demand
• If YES, but the person hired is underqualified, there is still a demand.
Level 2: Position filled but with underqualified personnel
• If NO, there is clearly still a demand.
Level 1: Budgeted, unfilled position
• If YES, and the person hired is fully qualified (i.e., certified) for the position, then there is no longer a CURRENT demand.
Level 3: New position
• If YES, and the person hired is fully qualified, but the quality or competence of that individual to teach is questionable, then there is no longer a CURRENT demand.
Level 5: Existing position filled with less-than-quality personnel

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directors and personnel directors). In planning program and staff needs for the upcoming school year, local decisionmakers had to determine their demand for personnel in two regards: (1) personnel they needed to fill existing positions; and (2) personnel they needed to fill new positions.

Personnel for existing positions. Decisionmakers had to identify the existing positions in the district that had been vacated by staff, and to try to fill those positions with other staff. For whatever reason the position had been vacated, the empty slot represented to the district a demand for personnel. Before deciding whether to try to fill the position, however, local decisionmakers had to examine the immediate circumstances and their available options: Could they possibly reassign current staff to cover the position? Had student enrollments dropped such that they would not need to fill it? Could they modify facilities or reorganize classrooms? Could they move students from one school to another? (LEAs typically dislike disrupting a student's program and try not to take such action, unless the student will be receiving improved services as a result.)

Having considered their available options, local decisionmakers made recommendations based on the immediate circumstances in the district (i.e., student enrollments, current staff, etc.). Given circumstances that were fairly stable and had not changed significantly from the previous year, budget considerations were not as important as they were for filling new positions, because the existing position--filled or unfilled--had already been approved by the local Board of Education, and funding was available to support a fully-qualified individual.

Some recommendations of decisionmakers were to try to fill existing positions that had been vacated. The specific reason for the vacancy was not important for immediate planning considerations, unless, of course, it was a short-term leave. A short-term leave (more than six weeks and less than one year, such as a maternity leave) required planners to find an immediate but only temporary replacement. The position was not really vacant--the person on leave would soon return. Otherwise, if a position were vacant for reasons of retirement, death, or a career change, the specific reason was not important for planning and hiring for the upcoming year. The position was, in fact,

officially vacant. That is all planners needed to know. (Keeping track of reasons for teacher attrition/turnover becomes far more important when making projections of demand into the future--five to ten, ten to twenty years. Who will leave, for what reason, and how often? Local districts did not plan that far ahead, so they did not keep track of these data.)

Once the decision was made to try to fill an existing position, the planning phase of the process ended and the hiring phase began. The purpose of hiring was to try to fill the position and meet the demand for personnel. Local decisionmakers then sought a job applicant who matched the qualifications for the job. The question then became, "Will we fill the existing position and with whom?" The answers to this question provided the study team with the key for examining the construct validity of HIRES as a measure of personnel demand.

When local decisionmakers answered this question at the end of the hiring process, their answers fell into one of four categories:

1. "NO, we did not fill the position, not even with underqualified staff. We have an existing position in the district that has been vacated. It's a position that has been approved by the school board, and the money is available to support a fully-qualified (that means certified by the state) individual in that position. We have recruited for that position to the extent possible in our district, and we are unable to fill it."

2. "YES, we filled the position, but we filled it with someone who is underqualified. Because we were not able to find a fully-qualified individual for the position, we selected our next best option and filled it with an individual who has less-than-full requirements for teaching in this type of position in our state. Our need is great enough that we thought someone in the position would be better than no one at all."

   (NOTE: "Underqualified" individuals include two types of personnel:

   a. uncertified personnel--having no certification at all

   b. not-fully-certified personnel--having certification but needing additional credits.)

3. "YES, we filled the existing position with a fully-qualified individual. The person we selected has the appropriate certification required by the position."

4. "YES, we filled the position with a fully-qualified individual, but we are concerned that the person may be less-than-quality personnel. The district is not completely satisfied that this individual, though fully qualified, has the quality or overall competence to teach in this position--in the sense of being able to establish rapport with students. Our district is concerned with more than just putting bodies in slots."

   (NOTE: Local districts distinguish between "qualified" and "quality." A teacher who is qualified has met all the requirements for state certification and is, therefore, licensed to teach. A teacher who is quality is both qualified and has overall "competence to teach." Such competence goes beyond meeting the minimum certification requirements for a position.)

These categories of personnel, then, represented the possible outcomes of the local planning and hiring process for existing positions. But what about new positions? Local demand for personnel often included the need to fill new positions. Were the personnel planning and hiring process and its outcomes any different for filling new positions than for filling existing positions?

Personnel for new positions. Major differences between personnel planning and hiring for new positions and for existing positions were in the planning phase. The hiring phase, and the possible outcomes of the entire process, were essentially the same.

In determining the demand for personnel in new positions for the upcoming year, local decisionmakers had to carry out all the activities necessary to create a new position. They first had to identify the situations in the district that required attention or that could be improved. For example, they had to review the enrollment figures and teacher-pupil ratios: perhaps they were going to exceed the maximum guidelines established by the state for a particular handicapping condition and instructional setting. They had to consider whether student needs were being met well by current staff, or if current staff were being stretched beyond their limits. They had to consider whether current facilities were adequate, or whether they had to make modifications to create another classroom.

Local decisionmakers then examined alternative approaches for implementing the improvements they were considering, given the specific circumstances in the district. Considering costs and budget issues was particularly important if they were going to recommend that a new position be created. Once the decision was made to create a new position, local decisionmakers had to define that position more exactly (i.e., program area, qualifications, FTE, etc.) and then seek a job applicant who matched the job as they had defined it. They had entered the hiring phase and would try to fill the new position they created. The question then became, "Will we fill the new position and with whom?" The answer to the question provided the outcome of the local personnel planning and hiring process.

The most important data that local special education decisionmakers used for personnel planning and hiring were:

1. student enrollments by handicapping condition, which local decisionmakers compared with state guidelines for minimum/maximum teacher-pupil ratios by program area and by instructional setting
2. personnel budgets
3. current staffing patterns by school and by program area

They compared the numbers of students and their needs they had to serve, with the amount of money they had to pay the salaries of personnel to serve those needs, with the configuration of students and staffing for each school in the district and for the program areas and instructional settings within each school. They juggled these data in planning for the upcoming year and in making adjustments throughout the year. The goal of local directors was to serve the greatest needs of the greatest numbers of their students, within the capacity and competency of their staffs to serve them, within the budget of the district to pay for them and for the appropriate facilities to house them. Most directors said that hiring personnel was "an enrollment-driven process," but certainly budgets affected the overall ability of a district to hire in the first place.

The characteristics, use, and adequacy of these data for determining current and future demand for personnel are discussed later in this report.

Outcomes of the Local Personnel Planning and Hiring Process

In examining the results of the local planning and hiring process for the pilot study sample (for both new and existing positions), the study team identified the following possible outcomes of the process for trying to fill a vacant position:

NO HIRE
- The (new/existing) position remained vacant. The district had a budgeted, unfilled position.

HIRE
- The (new/existing) position was filled but with underqualified personnel.
- The new position was filled with fully-qualified personnel.
- The existing position was filled with fully-qualified personnel.
- The (new/existing) position was filled with fully-qualified but less-than-quality personnel.

The possible outcomes made up the construct of HIRES.

The study team realized that if HIRES were to be a proxy for personnel demand in special education, then any approach for examining current and projected demand for would have to take into account all the possible outcomes of the planning and hiring process, including HIRES (broken into its component parts) as well as NO HIRES. Would it be feasible or even possible for OSEP to undertake such an effort? Perhaps a piece of the construct would be useful in measuring personnel demand. The study team explored the relationship between the outcomes of the local planning and hiring process and the demand for personnel.

"Levels of Demand" Apparent from the Outcomes of Hiring

In asking LEA interviewees about the outcomes of their hiring process for the 1986-87 school year, the study team began to see an association of each outcome with a component of personnel demand. Table 4 presents that association in terms of "levels of demand" for personnel in special education.

Table 4

Levels of Demand

for Personnel in Special Education

LEVEL 1: Budgeted, unfilled positions

Level 1 represents the most critical demand for personnel in special education. An LEA is unable to fill a position that has been approved by the local Board of Education, for which funding is available to support a fully-qualified (i.e., certified) individual in that position.

LEVEL 2: Positions filled but with underqualified personnel

Level 2 represents the next most critical demand for personnel in special education. An LEA is able to fill an approved, budgeted position, but it fills that position with an individual who is underqualified.

"Underqualified" means any individual who is one of two types of personnel:

(1) uncertified personnel (having no certification at all)

(2) not-fully-certified personnel (having certification but needing additional credits, e.g., provisionally certified).

LEVEL 3: New positions filled with fully-qualified personnel

An LEA creates a new position that did not exist before, and fills that position with a fully-qualified individual. This new position represents a demand for personnel wherever that demand might occur: a program area with increasing student enrollments that requires an additional position be created; a new program area with enrollments of students with a "new" or redefined set of handicapping conditions that requires a position to be created, etc.

LEVEL 4: Existing positions filled with fully-qualified personnel

An LEA fills an existing position that has been vacated with a fully-qualified individual. For whatever reason that existing position has been vacated (retirement, death, career change, etc.), the vacant position represents a demand for personnel.

LEVEL 5: Positions filled with fully-qualified but less-than-quality personnel

An LEA fills a position with a fully-qualified (i.e., certified) individual, but the district is not completely satisfied with the quality or competence of that individual to teach in that position. This is the level of demand at which an LEA trying to fill positions moves from concerns of quantity and filling slots to concerns of quality and overall competence to teach.

Level 1--the outcome from the hiring process of a budgeted, unfilled position--represents the most critical demand for personnel. There is "no body in the slot" in spite of the best efforts of the LEA to find one within its means. This is a clear and obvious demand, although some variables do confound it. (These variables and others associated with Levels 2-5 below are discussed at greater length later in this section.)

Level 2--the outcome from the hiring process of a position filled but with underqualified personnel--represents the next most critical demand for personnel. The person selected to fill the position does not meet the full qualifications for the job, either through complete lack of certification or through needing additional credits for full certification. The demand for personnel--for a fully-qualified individual--is clear, but it is confounded by the variable of state certification requirements--and these requirements vary from state to state.

Levels 3 and 4--the outcomes from the hiring process of a new/existing position filled with fully-qualified personnel--represent a demand for personnel, but that demand is only a potential one at some future time. Levels 3 and 4 represent a future demand, in the sense of indicating trends--a trend of new positions being created in certain program areas, or a trend of existing positions being vacated in certain areas, both of which will demand personnel to fill them. A new position having to be created, for example, might indicate increasing enrollments in the learning disabilities area. Or, as another example, an existing position being vacated might indicate a trend in personnel attrition in the area of emotional disturbance (i.e., the performance requirements of the position are so great that average teacher turnover is every three years).*

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* This is the "teacher burnout" phenomenon that appears to be problematic for certain groups, such as teachers who work with students who are identified as emotionally disturbed, or behaviorally and emotionally handicapped.

Levels 3 and 4 are not distinguished for matters of criticality or immediacy of demand, but because each is confounded by a different set of variables: Level 3 by student enrollments and all its associated variables (eligibility criteria, minimum/maximum guidelines for teacher-pupil ratios, etc.) that vary from state to state; and Level 4 by personnel attrition/turnover--the reasons for it vary from individual to individual.

Level 5--the outcome from the hiring process of a position filled with fully-qualified but less-than-quality personnel--represents a demand for personnel, but again that demand is only a potential one at some future time. The person selected to fill the position has the full qualifications for the job--at least on paper. He or she has met the state certification requirements for the position, and is licensed to teach. Level 5 represents a future demand, in the sense of indicating trends--trends of personnel in specialty areas, who are certified but do not meet all the professional standards of "competence to teach." Such trends may indicate demand for better-trained personnel.

Level 5 is distinguished from all the levels that precede it because it is the level of demand at which hiring concerns of decisionmakers move from ones of quantity (i.e., putting bodies into slots--some with full certification and some not--and counting numbers) to ones of quality and overall competence to teach. This level introduces the variable of teacher competency, and the need to define the characteristics and competencies of a "really good" teacher.

The levels of demand that became apparent to the study team provided a logical organizing framework for examining personnel demand in special education. Their importance to local decisionmakers was that they represented the components of local demand for personnel, whether or not these components were converted to numbers and reported formally, or simply "logged in their heads."

Did the outcome of local hiring meet the demand? If so, at what level? Assuming the purpose of hiring was to try to fill a position and thereby meet the demand for personnel, the question arose: "If a certain outcome is

achieved, has the demand for personnel at the local level been met through the planning and hiring process?" Table 5 presents the answers for each possible outcome and its associated level of demand.

The answer to whether or not the purpose of hiring had been achieved provided the study team with a clearer delineation of "current" and "projected" demand, using HIRES as a proxy for demand. It also provided a clearer delineation of the focus of local, state, and federal agencies in determining demand for personnel. It indicated which components would have to be examined to provide information for current and for projected demand. Levels 1 and 2 would provide information on critical and current demand. And all levels--1 through 5--would provide information on projected demand.

Because they hire the personnel to provide direct services to handicapped children and youth, LEAs focus on meeting current demand. When they fill a vacant position with a fully-qualified individual, they have met that demand. SEAs provide assistance to LEAs and coordinate with IHEs, the producers of personnel for the districts. SEAs focus on helping LEAs to meet both their current and projected demand for personnel, by coordinating district demand with the IHE-generated supply in the state. The federal agency stimulates production of the supply by awarding grants to IHEs targeted at training personnel in critical areas of demand--both current and projected.

If OSFP were to develop a plan for making nationwide estimates of demand for personnel in special education, these, then, would be the components on which to collect information. However, since OSEP's scope is national, and OSEP would collect information from all the states, the plan would have to include provisions for the various factors that shape demand across the states. Clearly, important variables figured in the dynamics of personnel demand at the local level, and these variables would have to be accounted for in any national estimates of current and projected demand. The complexity of the problem seemed to grow.

Table 5

The Demand for Personnel: Has It Been Met at the Local Level?

The possible outcomes of the local personnel planning and hiring process focus on meeting current demand. Each possible outcome represents a level of demand for personnel. The outcome may or may not have achieved the purpose of the process--to fill the position and thereby meet the demand for personnel.

Demand can be viewed from the perspective of time. Current (or short-term) demand--the focus of LEAs--includes a period of time up to 3 years. Projected (or longer-term) demand--the focus of SEAs and the federal level--includes a period of time from 3 to 10 years or beyond. Current demand is concerned with the immediate. Projected demand is concerned with the future.

Possible Outcomes/ Levels of Demand	Has the demand been met at the local level through the personnel planning and hiring process?
--Quantitative--	
1. Budgeted, unfilled position	NO. There is a critical and CURRENT demand for personnel at the local level.
2. Position filled but with underqualified personnel	NO. There is still a critical and CURRENT demand for personnel
3. New position filled with fully-qualified personnel	YES. CURRENT demand has been met.
4. Existing position filled with fully-qualified personnel	YES. CURRENT demand has been met.
--Qualitative--	
5. Position filled with fully-qualified but less-than-quality personnel	YES. CURRENT demand has been met.

Important Variables in the Dynamics of Demand at the Local Level

Some variables associated with HIRES were suggested earlier in this section in the discussion of "levels of demand." Table 6 provides a more detailed listing of the variables associated with each level. This list is not exhaustive; it highlights variables that the pilot study suggested were most important. An asterisk (*) appears by the key variable that should be accounted for in using with any accuracy the measure with which it is associated.

Each level of demand added variables to be examined by OSEP for making nationwide estimates of demand for personnel in special education. Once again the study team considered the possibility of one or two components of the HIRES construct being useful to OSEP in targeting federal resources.

Level 1--budgeted, unfilled positions--certainly offered the cleanest, single piece of data on personnel demand within the HIRES construct, with fewer variables to take into account. SEAs and LEAs across the country were likely to agree on the definition of a budgeted, unfilled position--a position that has been approved and funded, but for which there is no body to fill it. The underlying reasons for the position remaining unfilled, however, would have to be explored.

To move to Level 2--position filled but with underqualified personnel--would mean examining the certification requirements of all the states. Since "underqualified" refers to two types of personnel ("uncertified" and "not fully certified"), a determination would have to be made of which states allow an uncertified individual to hold a teaching position and which do not. And a range of variations across the states would likely be discovered in the "not-fully-certified" category.

Moving to Level 3 would at the very least involve examining student enrollment data, and comparing the state guidelines for minimum/maximum teacher-pupil ratios (by program area and by instructional setting). Increasing student enrollments typically provide reason for LEAs to create a new position and try to fill it with fully-qualified personnel. How many more students will be enrolling and what needs will they have for special education services?

Table 6

Levels of Demand and Associated Variables

Findings from the pilot study suggest that any effort to determine current and projected demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will also have to examine and interpret data on the key (*) variable associated with the specific component of HIRES.

	Level of Demand		Associated Variables
NO HIRE	1. Budgeted, unfilled position		• geographic location • economic disincentives • district employment requirements (e.g., NTE exam) • ability of district to recruit
HIRE	2. Position filled but with underqualified personnel	*	• state certification requirements • size/proximity of local supply of personnel (implications for recruitment) • state programming policies and priorities • local staffing decisions
	3. New position filled with fully-qualified personnel	*	• student enrollments: within state guidelines for minimum/maximum teacher-pupil ratios • student eligibility criteria • state programming policies and priorities
	4. Existing position filled with fully-qualified personnel	*	• teacher attrition/turnover
	5. Position filled with fully-qualified but less-than-quality personnel	*	• quality of supply: appropriateness of IHE training; individual competence

NOTE: The ability of a district to hire at all depends on its level of funding. This is the larger context in which the demand for personnel, and all its associated variables, must operate.

Moving to Level 4 would mean collecting data from all the states on teacher attrition/turnover and the specific reasons for it. A vacancy in an existing position occurs when the individual holding the position vacates it. This is obvious, but the reason the person leaves the position is important. People leave for different reasons. Leaving a position because the job is too stressful and unrewarding is a significantly different reason for leaving than is attrition because of death. To predict demand, "who will leave, for what reason, and how often" is important information.

Moving to Level 5 would mean assessing the quality of training in special education provided by the colleges and universities in the country, establishing the competencies of a "quality" teacher, and measuring individuals against those competencies.

Each variable associated with a level of demand raises questions for OSEP to consider in developing a plan for estimating nationwide demand for personnel in special education. These questions are discussed in Chapter VI of this report.

Conclusions Related to the Major Question of the Pilot Study: Is HIRES an accurate estimate of demand? If not, what other variables and conditions are associated with hiring that might need to be specified and controlled for?

- Hires as a single measure does not provide an accurate estimate of demand. It is a composite of several measures, each of which must be examined separately.

An examination of the local personnel planning and hiring process revealed these component measures. The purpose of the process is to try to meet local demand by (1) hiring personnel for existing positions, and by (2) hiring personnel for new positions. The possible outcomes are the same for both:

NO HIRE
- The position remained vacant. The district had a budgeted, unfilled position.

HIRE
- The position was filled but with underqualified personnel.
- The new position was filled with fully-qualified personnel.

OR

- The existing position was filled with fully-qualified personnel.
- The position was filled with fully-qualified but less-than-quality personnel.

Each possible outcome is a component of personnel demand. Each component with its count of personnel must be examined to obtain any accurate estimate of demand.

- Other variables and conditions associated with hiring must be specified and controlled for, if HIRES were used as an estimate of personnel demand.

Each component, or measure, of HIRES has important variables associated with it. Table 6 of this report summarizes some of them. If OSEP were to undertake any effort to determine current and projected demand for personnel in special education on a national basis, OSEP would have to examine data on the most important variables. For the components of HIRES of immediate concern to OSEP, these variables are:

-- Budgeted, unfilled position
-- Position filled but with underqualified personnel
-- New position filled with fully-qualified personnel
-- Existing position filled with fully-qualified personnel
-- Underlying reasons for position remaining unfilled
-- State certification requirements
-- Student enrollment data: within state guidelines for minimum/maximum teacher-pupil ratios
-- Teacher attrition/turnover

- Upon examination of the construct of HIRES as a proxy for personnel demand, this pilot study has determined that as a single measure within the construct, NO HIRES (i.e., budgeted, unfilled positions) seems to offer the cleanest estimate of current (up to 3 years) and critical demand for personnel in special education at the present time.

Certainly, special education decisionmakers would agree on the definition of a "budgeted, unfilled position." They point out, however, that the underlying reasons for NO HIRES must also be explored. Does the position remain vacant for a long time because of the geographic location or economic disincentives of the local school district? Does the individual district actively seek qualified candidates, or is it passive in its recruitment efforts? And why? To be an appropriate target for federal program resources, the underlying reason must be possible to address through personnel preparation (i.e., training).

To provide a more adequate estimate of current demand, NO HIRES data should be supplemented with data on underqualified personnel. Local school districts consider that they have met their current demand for personnel only when they have filled their vacancies with fully-qualified teachers. Adding underqualified personnel to estimates of current demand requires further breakouts of data into:

- numbers of positions filled with uncertified personnel
- numbers of positions filled with not-fully-certified personnel

To move beyond current and critical demand, and make longer-term projections of demand for personnel will require that OSEP address numerous other problems to make these projections accurate. These problems are discussed in Chapter VI of this report.

Local Demand for Personnel:
Conclusions from the Pilot Study Sample

Since the study team was to examine HIRES as a proxy for personnel demand, one of the first questions staff asked of interviewees at the local level was, "What was your total number of hires for the 1986-87 school year?" Their uncertainty about the question caused staff to state it more precisely: "What was the total number of special education teachers hired to fill vacancies

(that is, budgeted, unfilled positions) for the school year?" Even then it became necessary to break apart HIRES further to get an accurate picture of personnel demand from the pilot study sample.

Table 7 at the end of this chapter provides specific data from the districts in the pilot study sample. It presents that data for "total number of hires" for each district, and for each of the levels of demand revealed by the outcomes of the local personnel planning and hiring process. (It does not present data for Level 5, because the study was to be strictly a quantitative one, not qualitative. Level 5 is the only component of demand concerned strictly with issues of personnel quality, and that refers to quality beyond state certification.

The quantitative data on each of the components of HIRES did not provide much information on the areas of current and critical demand for personnel across the ten districts in the study sample. Viewing demand in terms of the HIRES model (demand = number of budgeted, unfilled positions + number of positions filled with underqualified personnel), the data revealed:

- Two of the ten districts had budgeted, unfilled positions--

  1 teacher of the trainable mentally handicapped

  1 teacher of the autistic

- Three of the ten districts had positions filled with underqualified personnel--

  1 uncertified teacher of the behaviorally and emotionally handicapped

  5 not-fully-certified teachers: 3 teachers of the emotionally disturbed and 2 teachers of the learning disabled

  1 not-fully-certified teacher of the emotionally disturbed

Of the total number of HIRES (182) across the ten districts for the 1986-87 school year, the current demand for teachers was nine (2 budgeted, unfilled positions + 7 positions filled with underqualified personnel). The conclusion from these figures is that there is no major problem. However, the quantitative data alone is misleading. Qualitative data from the local

districts provided additional information on teacher demand that was essential for identifying shortages.

Qualitative data obtained from local decisionmakers in the form of anecdotal statements provided essential information for identifying shortages in the sample districts:

- Although districts were able to fill most of their positions, local decisionmakers identified areas of "shortage" as positions that were "hard-to-fill," and personnel who were "difficult-to-find," requiring extensive recruiting. Typically, such shortages included:

  -- teachers of the emotionally disturbed. (Teacher turnover in this area is three years on the average due to the tremendous demands of the position.)

  -- teachers of speech and language. (Some districts consider speech and language to be a special education teacher position; some consider it to be a related services position.)

  -- occupational therapists and physical therapists. (Almost unanimously, the districts in the sample identified OTs and PTs as their most difficult-to-find personnel. These are related services positions, not special education teacher positions.)

- Because of the age of their special education teaching staff, several districts see sizable shortages coming within the next three years, especially if early retirement bills are passed by state legislatures.

- Because of newly-increased state certification requirements in the multicategorical program area, close to half the staff in several districts will become "underqualified" next year.

In this pilot study sample, it was the statements of local decisionmakers that, in fact, identified the demand for personnel in these districts. SEAs and OSEP would not have known about this demand, however, because the numbers reported to them could not provide a complete picture by themselves.

Another distinction became apparent to study team staff--the distinction between "revealed demand" and "unrevealed demand." This was even yet another variable that OSEP would have to consider in determining current and projected demand for personnel.

The nature of the "unrevealed demand" described by the pilot study sample was in terms of "hard-to-find" personnel. LEAs had to use more extensive recruiting efforts to locate such personnel. And the reasons that these personnel were difficult to find also varied: from "the schools cannot afford to pay the salaries these personnel can get in the private setting" to "the positions in this program area are so stressful, no one wants to go into it."

"Unrevealed demand" was also embedded in the numbers themselves. Interviewees suggested a variety of reasons for state and federal counts of personnel being lower than they should for presenting a true demand picture, based on actual requirements for personnel to serve the needs of handicapped children and youth. These aspects of "unrevealed demand" have been mentioned throughout this report. Such factors include state use of unduplicated counts of children, accounting only for their primary handicapping condition and not any secondary conditions they might have; state limitations on the number of children that can be identified within a particular handicapping category; the overall ability of a district to hire, based on the amount of state and federal funding it receives.

In conclusion, collecting both quantitative data and qualitative data from local special education decisionmakers is essential for making national estimates of demand. Estimating demand for personnel--current or future--also requires an accounting of factors that contribute to "unrevealed demand.

Analysis of Sample Data: A Basis for Nationwide Estimates of Demand?

One purpose of the strategy evaluation was to find out whether data are readily available from LEAs that can provide the basis for nationwide estimates of teacher demand. While the small sample of LEAs in the evaluation limits the reliability of actual estimation, the study team computed estimates of the national market demand from the sample to indicate the value of these data, if they were to be supplemented with data on several dozen other representative LEAs.

Table 8. Enrollment and Staff Sizes in Sampled LEAs*

	Total			Special Education				
LEA	Enrollmt	Staff	Ratio	Enrollmt	Staff	Ratio	Enr. %	Staff %
State 1								
A	44,100	2,300	19.0	3,800	250	15.4	8.6%	10.6%
B	21,500	1,350	15.9	4,840	130	36.9	22.5%	9.7%
C	23,900	1,350	17.7	3,820	170	22.1	16.0%	12.8%
D	16,700	1,050	15.9	3,110	140	21.5	18.7%	13.8%
E	18,100	890	20.2	2,370	80	27.9	13.2%	9.6%
Subtotal	124,300	6,960	17.9	17,940	780	23.0	14.4%	11.2%
State 2								
A	6,000	390	15.3	570	50	10.8	9.5%	13.4%
B	92,800	5,220	17.8	9,480	870	11.0	10.2%	16.6%
C	7,600	480	15.7	610	70	9.3	8.1%	13.8%
D	4,600	270	16.7	460	40	11.8	10.1%	14.2%
E	800	60	12.2	90	10	11.2	12.0%	13.0%
Subtotal	111,700	6,430	17.4	19,670	1,030	10.3	9.6%	16.0%
Total	236,000	13,380	17.6	28,610	1,810	15.8	12.1%	13.5%

* Values shown in the table have been rounded. Exact values were used in the estimation procedure.

An important question regarding the utility of analyzing the sample data concerns the representativeness of the sample. The nationwide teacher-pupil ratio, based on extrapolation of figures in the Digest of Education Statistics (1987), is 17.8; and the nationwide average percentage of pupils counted as requiring special education is 11.2% (ibid.). These figures can be compared with the data for the sample, presented in Table 8.

Based on these two statistics, the sample appears to be representative--at least it is not noticeably nonrepresentative. The values for the two states bracket the national estimates, in both cases. Nevertheless, note that

one LEA contributes 40% of the totals, so the results are quite unstable. The most striking pattern in Table 8 is the difference between the two states' special education teacher-pupil ratios. Although the overall teacher-pupil ratios are 17.9 and 17.6 for the two states, the special education teacher-pupil ratios are 23.0 and 10.3. This difference does, in fact, reflect the official guidelines of each state for class size maximums in special education. Conclusions should not be drawn from this difference, however, without examining the differences between the states' definitions of handicapping conditions and program areas of special education.

The general method used here to produce national estimates is ratio estimation. To estimate the number of new special education teachers required nationally, compute the ratio of new special education teachers required in each LEA to the number of students in each LEA and compute a weighted average, weighting each LEA's statistic so that the total number of students adds up to the total number of students in the nation. The basic assumption of this approach is that the sampled school districts are representative of the nation, in the ratio of new special education teachers needed to number of students.

The number of students can be taken from the total enrollments or from the special education enrollments. Total enrollments might be expected to be more reliable, because of variability in the definitions of handicapping conditions; but special education enrollments are more closely tied to special education staff requirements. For the purpose of generating national estimates, the present example uses the figure 45,300,000 for total enrollment, based on the 1987 Digest of Education Statistics, and 4,380,000 for special education enrollment, based on the 1987 Annual Report by OSERS to Congress. Note that these figures do not corroborate the national estimate of 11.2% of students being in special education. This may be because nonpublic school enrollments are included in the total enrollment figure for the present example. In applying the estimation procedures to a larger study, care would be needed to differentiate between demand for public school staff and for nonpublic school staff.

An idea of the amount of variability in the resulting estimates is conveyed by the range between the values obtained from one of the two states and from the other. Between-state variability is more important than within-state variability, because staffing criteria are set at the state level, so the limitation of this study to two states severely limits the reliability of the analyses. Nevertheless, presenting the estimates indicates the feasibility of the ratio estimation methodology.

Table 9 presents the data on special education hiring in the sampled districts, divided into existing positions to be filled because of exiting teachers and positions that are newly funded. These data include both HIRES and NO HIRES, which add up to the total demand the LEA places on the market. Clearly, demand between districts varies substantially, and the study team does not have data to indicate the extent to which the variation is a year-to-year phenomenon or a stable characteristic of LEAs. Certainly, some LEAs, such as those with military bases, experience higher turnover rates than others, but the study was not large enough to investigate relations to school district characteristics. The most striking pattern in Table 9 is the finding that most of the demand for teachers is due to turnover of teachers in existing positions, not to the creation of new positions. While new positions might provide employment for an additional 2% each year, roughly 1 in every 12 existing positions in special education becomes vacant and requires replacement each year.

Using the results represented in Tables 8 and 9, estimates can be generated of the nationwide demand for special education teachers to fill advertised positions in LEAs. Using the total enrollment weighting procedure, the estimates are 6,100 teachers to fill new positions and 28,800 teachers to fill existing positions. Using the special education enrollment weighting procedure, the estimates are 4,800 teachers to fill new positions and 23,000 teachers to fill existing positions.

Table 9. Special Education Staff Needs in Sampled LEAs

State 1	New Positions		Existing Positions	
LEA	Number	(% of SE Staff)	Number	(% of SE Staff)
A	7	2.8%	12	4.9%
B	5	3.8%	0	0.0%
C	0	0.0%	8	4.6%
D	1.5	1.0%	15.5	10.7%
E	3.1	3.7%	22.9	27.1%
Subtotal	16.6	2.1%	58.4	7.5%
State 2				
A	2	3.8%	2	3.8%
B	9.1	1.1%	73.9	9.0%
C	2	3.0%	6	9.1%
D	2	5.1%	8	20.5%
E	0	0.0%	20	25.0%
Subtotal	15.1	1.5%	91.9	8.9%
Total	31.7	1.8%	150.3	8.3%

The ranges of these estimates between the two states for requirements for new positions are 6,000 to 6,100 (for total enrollment weighting) and 4,100 to 6,200 (for special education enrollment weighting). The ranges of these estimates between the two states for requirements for existing positions are 21,300 to 37,300 and 14,300 to 37,700, for the two weighting procedures. Thus, if computations were based on State 1, using special education enrollments for weighting, this would estimate the market to offer about 18,400 positions; but if computations were based on State 2, also using special education enrollments for weighting, this would estimate a need for 43,900 positions. That is, analyses based on the pilot study sample of ten LEAs in two states can only provide ballpark estimates.

Additional information is required in order to provide more than very rough information on the size of the special education teacher market. First, many of the positions are filled by teachers moving between LEAs, and an estimate of the percentage of the supply that must be produced by institutions of higher education is required in order to use these data for planning purposes. Moreover, these data are specifically not allocated to specialties within special education, and such a breakdown is essential in a larger study whose purpose is to provide national estimates. Finally, this illustrative example has not addressed market segmentation: how important is it to develop regional estimates and estimates by type of district?

The point of this computational exercise was to demonstrate the feasibility of the approach, not to provide reliable estimates of demand for the current year.

CAUTION: Any conclusions on demand for personnel in these sample districts must be based on an examination of both quantitative data (revealed demand) and qualitative data (unrevealed demand).

Table 7

Personnel Demand in Special Education: State 1 and State 2
FY 1986-87 (Teachers Only)

STATE 1			REVEALED DEMAND: TOTAL NO. OF HIRES	REVEALED DEMAND: Level 1 • Budgeted, Unfilled Positions	REVEALED DEMAND: Level 2 • Positions Filled with Underqualified (Uncertified/Not Fully Certified)	REVEALED DEMAND: Level 3 • New Positions Filled	REVEALED DEMAND: Level 4 • Existing Positions Filled	UNREVEALED DEMAND: Areas of "Shortage" as Defined by District (includes related services personnel)
District A			?	0	?/?	7	?	• "Hard-to-find" personnel (i.e., requires more extensive recruiting) - speech *RS - PTs RS - OTs
Enrollment:								
Total	44,068							
SPED	3,800	(8.62%)						
Staffing:								
Total	2,315							
SPED	246.5	(10.64%)						
District B			5	0	0/0	5	0	• "Difficult-to-hire" personnel. (In this very desirable district, that means it takes over one week to fill a position.) RS - OTs RS - PTs - BEH (ED) RS - Adaptive PE - Academically Gifted
Enrollment:								
Total	21,500							
SPED	4,837	(22.49%)						
Staffing:								
Total	1,350							
SPED	131	(9.70%)						
District C			8	0	0/0	0	8	• No shortages here, except for minorities. Also, district currently contracts for OT, PT services; a goal is to hire its own staff.
Enrollment:								
Total	23,925							
SPED	3,819	(15.96%)						
Staffing:								
Total	1,349							
SPED	173	(12.82%)						
District D			17	0	0/0	1.5	15.5	• "Hard-to-find" personnel, typically for more specialized positions - speech - BEH (lack of universities providing certification) RS - OTs (schools cannot RS - PTs compete with private agencies offering higher salaries)
Enrollment:								
Total	16,677							
SPED	3,112	(18.66%)						
Staffing:								
Total	1,052							
SPED	145	(13.78%)						

STATE 1 (continued)

			REVEALED DEMAND								UNREVEALED DEMAND
			TOTAL NO. OF HIRES	Level 1 • Budgeted, Unfilled Positions		Level 2 • Positions Filled with Underqualified (Uncertified/Not Fully Certified)		Level 3 • New Positions Filled	Level 4 • Existing Positions Filled		Areas of "Shortage" as Defined by District (includes related services personnel)
District E			25	1		1(BEH)/0		3	22		• "Hard-to-find" personnel - speech - TMH - BEH RS - OTs RS - PTs (District sees "shortage" coming because of competitiveness of market.)
Enrollment:				(TMH)							
Total	18,117										
SPED	2,374	(13.10%)									
Staffing:											
Total	890										
SPED	85	(9.55%)									

* RS = Related Services

STATE 2

			TOTAL NO. OF HIRES	REVEALED DEMAND: Level 1 • Budgeted, Unfilled Positions	REVEALED DEMAND: Level 2 • Positions Filled with Underqualified (Uncertified/Not Fully Certified)	REVEALED DEMAND: Level 3 • New Positions Filled	REVEALED DEMAND: Level 4 • Existing Positions Filled	UNREVEALED DEMAND: Areas of "Shortage" as Defined by District (includes related services personnel)
District A			4	0	0/0	2	2	• "Difficult-to-recruit" personnel - ED - speech/language
Enrollment:								
Total	5,975							
SPED	568	(9.5%)						
Staffing:								
Total	390.76							
SPED	52.35	(13.39%)						
District B			82	1 (autistic)	0/5 (3 ED, 2 LD)	9	73	• Supply of well-trained teachers is not adequate--colleges cannot turn out fast enough. - ED ("tremendous need") • Schools cannot compete with $ paid by private medical agencies. RS - PTs (District sees "shortage" coming, especially if "early retirement" bill passes.)
Enrollment:								
Total	92,850							
SPED	9,485	(10.21%)						
Staffing:								
Total	5,221							
SPED	866	(16.58%)						
District C			8	0	0/0	2	6	• "Hard-to-find" personnel - ED (secondary) • Personnel trained for medical settings, not for schools RS - OTs RS - PTs (Having a very senior staff, district views early retirement as opportunity to open up positions.)
Enrollment:								
Total	7,556							
SPED	613	(8.11%)						
Staffing:								
Total	480							
SPED	66	(13.75%)						

STATE 2 (continued)

			REVEALED DEMAND						UNREVEALED DEMAND
			TOTAL NO. OF HIRES	• Level 1 Budgeted, Unfilled Positions	• Level 2 Positions Filled with Underqualified (Uncertified/Not Fully Certified)	• Level 3 New Positions Filled	• Level 4 Existing Positions Filled		Areas of "Shortage" as Defined by District (includes related services personnel)
District D			10	0	0/1 (ED)	2	8		• Can fill positions with qualified people, but has trouble getting quality people for particular areas: - ED - THR (beginning to be a problem) RS - OTs RS - PTs (District views "shortages" in terms of quality.)
	Enrollment:								
	Total	4,578							
	SPED	461	(10.06%)						
	Staffing:								
	Total	274							
	SPED	39	(14.23%)						
District E			2	0	0/0	0	2		• "Difficult-to-find" personnel (and in this order) RS - PTs (not trained for schools; get higher $ in medical setting) - ED (no one going into field; universities are "telling the truth: constant grief, little reward.") - OTs (better $ in private agencies) - speech (hard to get in rural, remote areas)
	Enrollment:								
	Total	750							
	SPED	90	(12.0%)						
	Staffing:								
	Total	61.5							
	SPED	8	(13.0%)						

NOTES

- Turnover for ED teachers is every 3 years on average in both states.

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IV. Findings and Conclusions: Available Data on HIRES and Related Variables

In the course of inquiring about the local personnel planning and hiring process, the study team asked special education decisionmakers in LEAs to identify data they keep track of and use to determine their demand for personnel. Knowing what data LEAs consider in making decisions about local personnel planning, hiring, and staffing would assist the study team to (1) clarify the definitions and complexities associated with determining the demand for special education personnel, and (2) alert model builders or other investigators to some of the data that may be available (or unavailable) for measuring current demand and projecting future demand for personnel.

The following discussion of data that LEAs used to determine their need to hire personnel and to document outcomes of the hiring process focuses on the data's:

- nature and availability
- accuracy
- adequacy and utility for measuring current demand and projecting future demand

Nature and Availability of the Data

Table 10 lists the primary indicators or measures that special education decisionmakers in LEAs considered in making decisions regarding personnel planning and hiring. Table 10 also shows which of these data were available at the SEA level in the two pilot states. (Although the focus of the pilot study was the local level, the availability of data at the state level that figures in local definitions of personnel demand and in hiring practices was important to determine. SEAs are the gateway through which the Federal Government obtains quantitative data on local personnel demand.)

Table 10

Data Inventory

The general question we asked interviewees was, "Do you keep track of the following information? If yes, do you use it in personnel planning, in making hiring decisions, or in making projections?"

Data Category: Budget	LEAs (10)	SEA #1	SEA #2
Budget and/or expenditures for special education teachers	10	Yes	Yes
Per pupil cost for handicapped students	On request	On request	Yes
Funding formula	10	Yes	Yes
Data Category: Enrollment, Staffing, and Teacher-Pupil Ratios			
Unduplicated child count data, by handicapping condition (P.L. 94-142)	10	Yes	Yes
Duplicated child count data (by primary and secondary handicapping conditions)	10	No	Yes
Percentage of handicapped in total school population by type of handicapping condition	10	Yes	Yes
N special education personnel employed, by area and full-time equivalents (FTEs)	10	Yes	Yes
Teacher-pupil ratios	10	Yes	Yes
Data Category: Faculty Attrition			
Magnitude of attrition, by program area or handicapping condition	10	Yes	Yes
Sources of attrition (e.g., retirement, out-of-district transfer, changing careers, death)	0	Will	Yes
Attrition of teachers in their 1st year, 5th year, 10th year	0, 0, 0	Yes	Yes

Table 10 (continued)

Data Category: Vacancies	LEAs (10)	SEA #1	SEA #2
N positions budgeted and unfilled, by category or handicapping condition	10	Yes	Yes
N positions recruited for, by category or handicapping condition	10	Will	No
Sources of vacancies (e.g., program expansion, loss of personnel)	10	Will	Yes
Data Category: HIRES			
N newly-hired special education staff, by category and handicapping condition	10	Yes	Yes
N FTEs required and N FTEs hired, by category or handicapping condition	10	Yes	Yes
Sources of HIRES (e.g., out-of-district transfers, new graduates, continuing but newly-qualified personnel)	10	No	Yes
Seniority list (if layoffs are necessary)	10	N/A	N/A
Breakouts for HIRES by type of certification, and emergency/ temporary status	10	Will	Will
Data Category: Qualifications of New Hires			
N certified and N with less than full certification, by category or handicapping condition	10	Yes	Yes
N qualified in one area but serving in another	10	Yes	No

What data were available? The indicators or measures in Table 10 cluster under six categories: (1) budget; (2) enrollment, staffing, and teacher-pupil ratios; (3) attrition; (4) vacancies; (5) hires; and (6) qualifications of new hires. In the table, the order of the six categories corresponds to the sequence of the local personnel planning and hiring process in Figures 1 and 2 of the preceding chapter. That is, special education decisionmakers in the pilot study sample used data under the first four categories to determine new and existing positions to be filled, and they used indicators under the fourth, fifth, and sixth categories to document outcomes of the hiring process.

Not surprisingly, the formal reporting requirements of local, state, and federal levels determined what data were most likely to be maintained systematically by LEAs in the study sample. For example, under the "Vacancies" category in Table 10, the statistic called "N positions budgeted and unfilled, by category or handicapping condition" was readily available because of reporting requirements. Although the statistic called "sources of vacancies" was available (in the sense that the special education decision-makers who were interviewed often knew the reasons positions had been vacated), LEAs did not necessarily obtain or systematically record these reasons. A different example is the per-pupil expenditure statistic under the category "Budget." LEAs in the study sample could provide it on special request, but they did not report it routinely.

As is apparent from Table 10, some data that LEAs could supply were not necessarily available from their respective SEAs in breakouts for special education. And the SEAs collected additional detailed personnel data from LEAs for state-level analyses, which LEAs did not necessarily use for local planning and hiring. Neither SEA was presently making its databases available for others to use, and neither state's data system could provide outsiders with a "query" capability.

How far back were data available? For the most part, personnel data that were currently available from LEAs and SEAs were also available two to three years back, at least. In addition, some LEAs were putting historical data on personal computers and mainframes for ease of access, and for personnel planning purposes.

What form were the data in? The form in which data were available from LEAs varied considerably, from handwritten calculations, lists, and summaries to formal computer printouts. Obviously, the largest LEAs needed formal data systems the most; they had the most data to handle. Consequently, the data in Table 10 were more likely to be readily accessible in summary form from large LEAs than from small LEAs. For example, the largest LEA in the pilot study sample (total enrollment 93,000) had a very sophisticated data system. The smallest LEAs in the sample (total enrollments of 750 to 20,000) kept track of much of the data in Table 10 informally. Interviewees from the smaller LEAs said they had some of this information "in their heads" because their special education staffs were small and easily tracked.

Both SEAs also had very sophisticated data processing capabilities and data systems. They could link separate databases to run analyses that would address specific, timely questions about personnel supply and demand. They could disaggregate data to produce some local and regional summaries. The specific nature of analyses changed from year to year, according to the questions of highest priority.

What were reporting routines for these data? Data collection and reporting by LEAs in the study sample revealed the following pattern. During the school year, LEA advisory committees and decisionmakers assessed program and staff needs (February, March), and LEA staffs updated enrollment statistics (three or four times). A June 1 "head count" was required by the Federal Government as the basis for making PL 94-142 allocations, and was the primary means by which the SEA monitored the minimum/maximum enrollment guidelines for each program area. Late May or early June was also the time when special education directors in LEAs again reviewed their personnel and program situations, using data such as that in Table 10. Having determined the demand for personnel in the upcoming year, they made recommendations--sometimes in the form of annual plans--for the local boards of education to review. June was also the month when the local boards reviewed district budget requests for the coming year. (The special education budget was typically part of the LEA's overall budget, and could not be distinguished from it except through special calculation.) The boards also considered any local advisory committee assessments of program and staff requirements at this

time. Once LEAs received board approval, they tried to fill vacancies before the next school year; thus, summer was often a key time for recruitment and hiring in many districts. Other districts, particularly the larger ones, had to start this process earlier. They too, however, had to recruit and hire up to the last minute if they had positions that were "hard to fill."

In addition, LEAs had to meet standard procedures and requirements in providing data to their SEAs. In State 1, all school-level personnel (teachers) are required to submit a form to the state in mid-September to early October via their LEA coordinator. The form asks for information such as type of assignment (by full-time equivalent, or FTE), class enrollment, ethnicity, experience status (new hire, etc.), and source of funds. The database from this is used for a variety of purposes, including LEA program planning. As of December 1, LEAs report "continuing needs/unfilled positions" to the SEA. The SEA summarizes the data for its "End-of-Year Report," and for its report to the Federal Government. In State 2, teachers complete a similarly detailed, individual report and return it to the SEA by October 1, update it in February, and return it the following October. Other submissions include the LEAs' plan of service for special education (submitted in May and resubmitted in August), and enrollment reports, submitted the third Friday in September.

SEA data collections from their LEAs are major efforts. Data collection forms and procedures have been perfected over the years, with impressive results, such as improved accuracy and (in one recent case) a nearly 100% response rate on a voluntary survey. Some of the lessons learned are summarized in the Recommendations chapter as suggestions for building a model data system.

Accuracy of the Data

The study team did not function in the role of auditors who verify the acccuracy and reliability of data that LEAs use to determine the need to hire (see Table 10). Rather, the team asked about the local process for producing and checking data.

As the above discussion indicated, LEAs checked and updated their data regularly throughout the year. They attributed any errors that crept into their data at the state level to bureaucratic "bigness" and to the numbers of people handling their data. In addition, local data came under the scrutiny of local advisory groups, parents, and school boards. Presumably, each of these parties shared the goal of serving handicapped children while avoiding litigation in the process.

For the most part, both SEAs used standard, computer-based verification procedures to improve the accuracy and reliability of their data. Also, they instituted data collection strategies that significantly reduced opportunities for errors.

Federal data (reported by SEAs) and respective state data (reported by LEAs) did not necessarily correspond, however. In the pilot study, LEA and SEA interviewees attributed discrepancies* to a variety of possibilities, including the following:

- SEAs used unduplicated counts of students--representing their primary handicapping conditions--as the basis for estimating personnel demand. LEAs used duplicated counts-- representing both their primary and secondary handicapping conditions--in determining personnel demand. In other words, from the local perspective, many children may have less severe needs resulting from their second condition (such as speech and language problems), but they are still needs that should be served. This implies a greater demand for personnel than the primary condition alone would indicate.

- If an SEA identified a greater number of students as eligible for special education services than the SEA had the funding to support (such as emotionally disturbed children and youth--the ED category), the SEA would be legally required to serve them whether or not the dollars were available. Thus, levels of funding for special education could lead to the phenomenon that one SEA interviewee called "unrevealed demand" for personnel.

- If an SEA placed a cap on numbers of children that could be identified with a specific handicapping condition (e.g., LD), it might disallow as "overidentification" the number of children a district identified beyond that cap. The district still faces the problem of serving those students, although they may not appear as numbers at the SEA level.

* These are examples of practices or situations that contribute to underestimating the "true" demand for personnel.

Resources Required to Produce the Data

The study team asked LEA and SEA interviewees to indicate the "cost" of collecting and maintaining the data in Table 10. In other words, what funds, equipment, specialized staff, and technical assistance were invested in order to obtain accurate, useful data?

LEAs were unable to cost special education data collection and reporting because these tasks had become such an integral part of overall district operations. Even special education directors had difficulty estimating what percent of their time they spent on these tasks, because they did them piecemeal throughout the year.

Both SEAs in the sample said that the resources required to obtain and use LEA data were changing rapidly. Thanks to sophisticated computer hardware and software, and the growing number of LEAs that were using personal computers and specialized software to store and report personnel and program data, both SEAs expected that it would become increasingly more economical to obtain accurate data for local, regional, and statewide personnel planning.

The two SEAs also realized economies by improving their data collection forms and related instructions, and by providing technical assistance to LEAs to help them improve local data collection and management. In Chapter VI, Recommendation #3 incorporates these and other lessons learned by SEAs (and LEAs).

How LEAs and SEAs Used the Data for Determining Current and Projected Demand for Special Education Personnel

Local special education decisionmakers used the above data along with other information to determine program and staffing needs for the upcoming school year, and to identify situations that needed remedying during the current school year. They looked back in time at enrollments, by handicapping condition, to judge whether these enrollments were stable, increasing, or decreasing. However, LEAs did not use these historical data to develop projections of personnel demand beyond the coming school year--nor did they anticipate that attempting longer-range projections for their LEAs was a particularly useful thing to do. Their focus was on obtaining approval for

sufficient FTE units to meet personnel demands for the coming academic year, given a finite amount of local, state, and federal funds.

Both SEAs in the pilot study sample used the data they obtained from LEAs to meet federal and state reporting requirements, including the SEA's Comprehensive System for Personnel Development (CSPD) plan. These SEAs also used the data, in conjunction with other databases, for special-purpose analyses. Examples were analyses that:

- identified areas of current and projected teacher shortages statewide (with breakouts for special education areas). They compared turnover rates with the state average to spot current critical shortages. They noted whether special education turnover rates in some areas were higher than the state average.
- compared regions on a number of program and staffing dimensions
- determined enrollment and staffing trends by special education area

In State 1, one major difference between LEA and SEA estimates of demand for personnel was that the LEAs used duplicated child counts to determine local service requirements (the LEA focus), while the SEA used unduplicated counts to estimate statewide personnel shortages (an SEA focus).

A second difference was how "forward planning" each tried to be by using data. LEAs' analyses focused on the immediate and very near-term (i.e., current demand), the boundaries of their accountability for local programming and staffing. SEAs looked to the future (i.e., projected demand) in order to address questions put to them by their state legislatures, their governors and state superintendents of public instruction, their institutions of higher education, and their own planning and budgeting staffs.

Examples of SEAs' efforts to predict personnel demand and related trends. Since 1979 one SEA had contracted with one of its universities to conduct focused assessments of special education service needs. This SEA had been prompted to request additional assessments as a result of its own surveys. In addition to assisting the SEA to meet federal reporting

requirements of P.L. 94-142, the objectives of this annual statewide assessment were to:

- predict special education personnel demand in the state
- provide a basis for predicting trends and changes in the field
- provide data that could be used to construct an overall picture of the employment market for special education teachers. The state's institutions of higher education (IHEs), in turn, could use such a profile as a basis for directing students toward areas of critical demand for personnel (and away from areas that anticipate surpluses)
- provide information that IHEs could use to improve the quality of their personnel preparation programs

Both SEAs had vastly upgraded their data processing technology in recent years, and both employed staff who were attempting to improve the SEA's ability to do long-range educational forecasting--for all of education, not just special education. For example, one of State 1's ideas for projecting trends in personnel demand was first to develop ratios for current demand (staffing level) by program category, using full-time equivalents (FTEs) of personnel and numbers of students (enrollments); and then to project the ratios across time, taking into account ratios from prior years. After projecting the ratios, the ratios could be converted back into numbers of FTE personnel required. State 2, through contracted assistance, was trying another procedure to develop projections of special education personnel. Its elements (predictors) were:

- the number of newly prepared teachers graduated from IHEs in the state; to this number, apply the (known) percentage of those who will actually enter teaching in the area for which they trained
- the number of emergency licenses (as an indicator of "need" for particular services); to this number, apply an attrition factor
- the number of children served (duplicated count); to this number, apply a correction factor for projected growth of a program area

These SEA interviewees acknowledged that the complexities and pitfalls confronting their efforts to develop long-range forecasts were formidable. For example, a common concern was that changes occur so fast in important predictor variables, such as funding levels, priorities, legislated

requirements and programs, etc., that basing projections on current and historical data is a questionable practice. Nevertheless, both SEAs were using historical data to make projections for planning purposes and for advising their state-supported institutions of higher education to adjust personnel production to meet anticipated demand (or to cut back personnel preparation programs in areas of anticipated surplus).

The above discussion points to some of the problems experts at the state level confronted in attempting projections that generally do not even run beyond five years. Producing even longer-term forecasts (e.g., five to twenty years) for a federal strategy of targeting critical demand for personnel--because the personnel production system (IHEs) is a slow-response system--would raise even greater problems. The next chapter discusses further the conclusions of the pilot study on the limitations and utility of LEA and SEA data for a federal targeting strategy.

* * * * *

Investigating strategies of meeting the demand for special education personnel was outside the scope of the pilot study. However, at the request of the work group, the study team did inquire about recruitment strategies in its interviews with LEA and SEA staffs.

Status of Recruitment by LEAs and SEAs to Meet Demands for Special Education Personnel

The consensus among LEA and SEA staffs in the pilot study was that the ability to recruit personnel is a significant factor in whether or not local districts or particular geographic regions "experienced critical shortages" (their term). Interviewees also conceded that just knowing particular personnel would be difficult to recruit (i.e., hard to find, limited supply) might discourage LEAs from budgeting such positions at all. (This is a source of "unrevealed demand.") The perception of the pilot study sample is consistent with that of other investigators, who acknowledge that the recruitment situation (including incentives and disincentives) must be known and taken

into account in order to interpret data on areas of critical demand for personnel (McLaughlin, Smith-Davis, & Burke, 1986; Schofer & Davis, 1986; Schofer & Duncan, 1984; Smith-Davis, Burke, & Noel, 1983; Yates, 1987).

The context for recruitment. In State 1, until recently, LEAs were responsible for recruiting personnel to fill vacancies. In 1986, the state legislature authorized a program that established a Teacher Recruitment Office (TRO) in the SEA's Division of Teacher Education. The TRO:

- develops and analyzes data on teacher supply and demand. For example, the TRO identifies requirements of individual LEAs for teachers in particular subject areas (including special education areas).
- coordinates and administers a comprehensive recruitment effort. The TRO works with 341 appointed high school teacher recruiters and with 8 regional teacher recruiters (the latter having been selected as "teachers of the year") to attract talented high school students into the profession, to provide information about teaching, and to improve the field's professional image.
- coordinates efforts to develop programs that attract and retain capable teachers, especially minorities and individuals who may not otherwise consider entering or continuing a career in teaching. For example, the TRO administers scholarship/loan and incentive programs.
- conducts statewide marketing campaigns. The objective of a recent campaign was to enhance the image and attractiveness of the teaching profession.

An advisory council assists the TRO; its members represent education groups, the lay public, business and industry, media organizations such as radio and television broadcasters, and other groups that might enhance the impact of recruitment efforts.

The TRO holds meetings in each region to train the 341 high school teacher recruiters, and meets monthly with the eight regional "teachers of the year" who work full time in their respective regions with the local TRO high school recruiters. (The TRO's emphasis on marketing careers in teaching to high school students acknowledges the importance of recruiting during the second or third year of high school, as colleges do to recruit for collegiate sports.)

In State 2, LEAs were responsible for recruiting personnel to fill vacancies. The SEA acted as a clearinghouse by providing a computerized placement service. Graduates looking for positions completed applications, indicating their geographic preferences and their certification; information on these applications was stored in the computer database. When LEAs sent announcements of vacancies to the state, the clearinghouse staff sent the LEA a printout of qualified applicants. The SEA said that the greatest hindrance to efforts of recruiting special education personnel was competition from other states' recruiters.

This state did not offer teacher incentives, leaving such matters to individual LEAs. The SEA acknowledged that the incentive issue was most critical for LEAs in remote, rural areas of the state. The state legislature considered an early retirement option, which would act as an incentive by allowing teachers in the system who met tenure requirements to retire early with full benefits. The bill was defeated, but interviewees were certain it would come up again next year. (The needs assessment consultant in this state said that early retirement would have little impact on the number of openings for special education personnel, because the special education teachers in this state are on average ten years younger than teachers in other subject areas.)*

The LEAs' recruitment situation. In the study sample, most of the LEAs did not have to do heavy recruiting (except for certain program areas) because they were in desirable areas with low unemployment.

In the low-turnover LEAs, and in districts with a good reputation in a desirable location, special education directors and personnel directors had access to active files of well-qualified applicants from which they could select the "cream of the crop." For example, one special education director in such an LEA said, "People just seem to walk in when we need them."

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* This is a good example of how appropriate breakouts (by subject area) of a readily available piece of data (average age of teachers in existing positions) enabled one observer to predict the impact that a major piece of legislation would have on the demand for special education personnel.

Recruitment in low-turnover districts focused on "difficult-to-find" types of personnel. These included members of minority groups, which were difficult to find in general because of the many job options available to qualified candidates. Other difficult-to-find personnel included occupational therapists (OTs), physical therapists (PTs), and teachers of the emotionally disturbed (ED).

Whether LEAs recruited locally, statewide, regionally, or nationally often depended upon whether local colleges produced a sufficient supply of qualified personnel in categories that matched LEA vacancies. For example, one LEA had a university in the area that offered the second largest teacher training program in the state--a ready supply.

LEAs' recruitment methods. Directors of special education and personnel directors carried out recruiting activities, both jointly and separately. Special education directors tended to be more involved with local recruiting, and personnel directors with regional or national recruiting.

The following strategies provide a composite picture of the recruiting activities of LEAs in the study sample:

- At colleges and universities:
  - Special education directors spoke in person to various special education and related services departments at local colleges and universities.
  - They established working relationships with appropriate professional staff in these colleges and universities.
  - They recruited selectively at specific colleges and universities (not just those within a 20-mile radius); they did this out of a commitment to find the best personnel.
  - LEAs had recruiting booths at local colleges and attended job fairs.
  - They contacted career planning and placement people and posted job announcements at these institutions.
- LEAs advertised in newspapers, newsletters, and magazines of professional associations.

- They did some recruitment out of state, usually in other surrounding states.
- They conducted national searches for administrators or other hard-to-find personnel.

Most LEAs lamented that they could not offer teacher incentives because of tight budgets. One LEA offered difficult-to-hire personnel a "system-wide contract," meaning that they could guarantee a job to a college student anywhere in the district upon graduation. Other LEAs gave provisional certification, if necessary, to keep existing staff--an action strongly recommended by teacher unions--rather than offer real incentives to draw new people into the district.

LEAs also commented on the difficulty of competing at job fairs with "slick, out-of-state, professional recruiters" whose booths, marketing materials, and recruiters drew more attention from prospective applicants.

The link between recruitment problems and supplies of personnel. SEAs and LEAs agreed that recruitment problems will persist for personnel in areas of short supply. As pointed out earlier in this chapter, both SEAs have formal relationships with their institutions of higher education (IHEs), through which they try to influence IHE staff to counsel students to prepare for program areas in which large numbers of positions are currently filled by underqualified teachers, or for areas in which unfilled vacancies persist, or for areas in which teacher-pupil ratios are pushing maximum limits.

Conclusions and Insights

Findings from the pilot study led to the following conclusions and insights about the data that supported local personnel planning and hiring decisions.

Available data were used to determine current, not projected demand. Data that LEAs used to determine their demand for personnel focused on meeting current needs of students for special education and related services. That is what LEAs must do, and their present data systems and available data suit that objective. LEAs did not project their future demand for particular kinds of

personnel, nor did they see the need to do so for local programming and staffing.

SEAs in the pilot study were making some headway with techniques for projecting the demand for particular kinds of personnel, but pointed out major obstacles to attempting to develop reliable long-term projections (beyond three years).

As data moved up through the system (from LEA to SEA to federal), the data became less useful and accurate for measuring local demand for personnel. Presently, the major channel through which OSEP obtains state-by-state data on personnel demand is through SEAs, whose counts do not necessarily correspond with LEA determinations. The preceding section of this chapter documented possible reasons for such discrepancies.

Moreover, the most informative data summaries of SEAs pertained primarily to interests of state-level policymakers, who did not necessarily ask the same questions of the data from year to year, and whose questions did not always match the information needs of federal-level policymakers. Finally, one SEA's estimates of personnel demand were derived from unduplicated counts of students; the other SEA's estimates were based on duplicated counts. Obviously, these estimates are not comparable. (A point to consider for any future data collection that seeks SEA estimates of local demand is accommodation for differences in estimates due to use of unduplicated or duplicated counts.)

Because large LEAs were required to handle larger quantities of data, they were more likely than small LEAs to have sophisticated data systems that systematically maintained data and could make it more accessible in summary form. The sheer volume of data that large LEAs (total enrollments above 20,000) handled made it necessary to institute systematic recordkeeping procedures and relatively sophisticated data collection and management strategies for a broad array of data.

Reporting routines were well worked out and running smoothly, although reporting burden was increasing. In both states, various components of the data collection and reporting process had improved steadily over the years, and LEAs adhered to formal guidelines that SEAs provided. SEAs and LEAs in the study sample observed that formal requirements and special requests for data (from both state and local requestors) were increasing, in spite of efforts to coordinate data collection activities.

Data that LEAs used to determine the need to hire appeared to be accurate. LEAs updated district and classroom enrollment data at regular intervals (three to four times a year), and local advisory boards and boards of education provided further scrutiny.

LEAs and SEAs were unable to indicate the "cost" of collecting and maintaining the data they used to determine demand for special education personnel. Reasons were changes in the nature and costs of resources for data entry, processing, analysis, and reporting, and the absence of formal cost-benefit studies. At the LEA level especially, a major reason for being unable to cost data-related tasks was that LEA staff carried out such tasks piecemeal throughout the year, working them into their daily routines. (Obviously, more sophisticated equipment is costly but promises eventually to reduce the time for data processing, analysis, and reporting. Although mastering sophisticated technology requires a significant investment of time at first, this diminishes as the learning curve materializes.)

Lag time in the system exceeds lead time in short-term projections (up to three years). Lag time for the federal funding cycle (which starts two years ahead of awards) and for grantees' programs to produce graduates (say, three to five years) makes it questionable to base grant award decisions on short-term projections, those most likely to be available from SEAs. SEAs acknowledge major difficulties in using historical data for forecasting beyond three years. (Even if every SEA could develop accurate fiveto ten-year projections of personnel demand by level and handicapping condition, it is unclear what that would tell SEAs to do about personnel preparation programs in their respective states, how fast their IHEs could respond, and what the consequences would be for addressing national and regional shortages.)

V. Discussion and Implications for Recommending Next Steps

Identifying Severe National Shortages Can Be Easy

Because teachers are employed in local districts, teacher supply and demand is a truly local phenomenon. The pilot study suggested that identifying shortages of special education personnel has quantitative and qualitative aspects, which local special education decisionmakers specify in planning for the upcoming school year. They express the magnitude and character of their current demand for personnel in terms of numbers of positions, qualifications desired of applicants for those positions, and service needs of children they want to meet by filling positions with fully-qualified individuals. They can specify the categories and speciality areas of personnel that are difficult to find or (possibly) in short supply. They can describe exactly the employment setting in which teachers will work.

This kind of local information is extremely relevant for the federal targeting strategy. However, federal data requirements from states and aggregated data do not provide a view of teacher demand with the clarity, accuracy, and timeliness of that in local school districts. As the data from individual districts is merged at the state level, and data from individual states is merged at the federal level, the local data loses the qualities that made it useful: a clear, accurate, and timely picture of teacher supply and demand in a unique local district. Moreover, variations across districts that were apparent from the study's analysis of sample data argue against the utility of statewide or even regional reporting.

Implications. Federal annual reporting requirements may be unjustified. At a minimum, there is justification for seeking a more efficient, economical, and less burdensome alternative. (See Recommendation #2 in Chapter VI.)

The Hard Part Is Interpreting National Data On Demand

Even with a better way to obtain data on shortages, the federal program must still interpret that data to define and select priority areas, and justify

its allocation of training resources among them. Interpreting national data on demand requires understanding the factors that influence both demand and supply of special education personnel.

Many important factors influence the demand for personnel. In the pilot study, the HIRES model offered no single measure of demand. Numbers of budgeted, unfilled vacancies (NO HIRES) and numbers of positions filled with underqualified personnel did not answer questions like these: Why did the vacancy occur? What is the probability that the vacancy will recur, and how soon? Can the training and recruitment aspects of the vacancy be distinguished? How long did the vacancy remain open? What types of locations are over-represented where unfilled vacancies persist?

Table 11 (at the end of this chapter) provides an organizing framework for examining the components of personnel demand. The information in Table 11 was compiled from Tables 4, 5, and 6 in Chapter III. The "data questions" provide a focus for future data gathering and research.

The last column of Table 11 suggests how various data might be used by federal program managers (or by decisionmakers at institutions of higher education) to focus resources for personnel preparation. The actual utility of the data for these purposes could be empirically evaluated.

Very little is known about the supply side. Who will actually accept positions in special education for which they were trained? Who among former teachers will return and when? Which teachers will continue and for how long? Who will enter from out of state? Under what conditions might a person decide to teach (enter the supply pool)? How do economic and demographic factors interact with state policies to increase or decrease supply? How are available data on supply defined, computed, collected, and verified? (These questions are based on discussions in Olson & Rodman, 1987, and in Hawley, 1986.)

Few IHEs have followup data on their trainees and what they do after completing training for careers in special education. Neither SEAs nor LEAs are tracking attrition and turnover in a manner that helps to predict the size of the special education teacher force by category, specialty area, or the

handicapping conditions they are qualified to address (Schofer & Duncan, 1984; Schofer & Davis, 1986).

Manipulating a single variable may alter supply and demand dramatically. Consider the variable of state certification requirements. When a state responds to its teacher shortage in a given subject area by lowering its standards for who is qualified to teach, it at once increases the supply of eligible applicants for vacant positions in that area, thereby making it easier for local districts to fill their budgeted vacancies.

Alternatively, raising certification standards for teachers as a strategy for improving the quality of services to children creates an immediate shortage of staff who meet the higher requirements.

Writing on teacher supply and demand, Roth (1986) named three questionable staffing practices that have become widespread in education generally, and which are most likely to occur in personnel categories where demand exceeds supply: (1) issuing emergency certifications; (2) providing alternative routes to certification; and (3) out-of-field assignments-- allowing teachers to teach outside of the field for which they were trained. Out-of-field teaching assignments are obscured by state certification systems that allow teachers to teach a wide range of subjects, or to teach children with a wide range of handicapping conditions.

Implications. Understanding how various factors influence both supply and demand helps to interpret national data on personnel in special education. (See Recommendations #3 and #6 in Chapter VI.)

Data Ages Fast

Data that local districts provide is for current positions (filled or unfilled), current enrollments of children with various handicapping conditions, current certification status of their teachers, and so forth. This information is out of date by the time it is aggregated at the state level and then reported to the Federal Government.

In fact, by the time the data reach the federal level, the funding cycle for awards two years hence is underway. Inevitably, then, data in states' annual reports and information in their CSPD plans are not as useful as they were intended for deciding how to target training resources.

Implication. Identify statistical means of improving the usefulness of available data for targeting resources, e.g., for identifying trends and assessing stability of various indicators of demand. (See Recommendation #4 in Chapter VI.)

Short-Term Projections Fall Short of the Lag Time in the System

Lag time in the system has several aspects. One is the federal funding cycle, which starts two years ahead of awards. Add to that the time it takes for grantees' programs to produce graduates (say, three to five years). Then, schools of education need sufficient lead time to adjust their programs to emerging priorities for personnel preparation, and to counsel students into areas where demand will exceed supply.

Implication. Focusing federal training resources on the basis of short-term projections is questionable. However, SEAs acknowledge major difficulties in using historical data for forecasting beyond three years. A recent survey determined that SEAs are reluctant to make projections beyond the current year (Schofer & Duncan, 1984).

In addition, to be useful for targeting federal training resources to emerging demand for personnel, projections must account for new service delivery models requiring new types of personnel and staffing arrangements. SEAs are unlikely to be able to predict when such shifts will occur, and how dramatic technological advances and other "system changes" will alter the future demand for special education services.*

* Even if every SEA could develop accurate five- to ten-year projections of personnel demand by level and by handicapping condition, it is unclear what that would tell SEAs to do about personnel preparation programs in their respective states, how fast their IHEs could respond, and what the consequences would be for addressing national and regional shortages.

Prospects for Accurate Long-Range Forecasting Are Dismal

Over the past thirty years, the nation has seen major swings between teacher shortages and teacher surpluses. If accurate long-range projections of demand for special education teachers were available, schools of education would welcome them in counseling their students.

Projections of national school enrollment one or two decades into the future can be achieved with reasonable accuracy, based on population demographics. Therefore, with assumptions about the stability of state guidelines for teacher-pupil ratios, the total demand for teachers can be projected. The problem lies in the necessity for projecting the perceived demand for teachers with special certification to address students with particular categories of need.

Although most Americans can agree on the value of devoting special effort to the education of children with special needs, the amount of effort to be put into their education is constantly at issue. Therefore, the funding for special education is likely to vary with the political winds--and these winds are responsive to a variety of unpredictable factors unrelated to either education or children. The level of funding for educational programs over the past twenty-five years gives caution for describing the future of special education. Federal funding is a major force in determining the market for special education teachers; that reason alone makes market projection perilous.

Even ignoring the political and litigious framework in which special education operates, wide-ranging questions are constant about the appropriate delivery of special education. In particular, issues of appropriate contexts, conditions, forms, and levels of mainstreaming are likely to redefine the market for personnel in special education for a long time to come.

Long-range projections also necessitate predicting human behavior, which is often unpredictable, e.g., who will actually enter the teaching force and who will leave, and for what reasons (Darling-Hammond for RAND, in an unpublished concept paper for the Center for Statistics' current study of staffing and schooling).

Implication. Given this context, the estimation of demand for special education teachers is still meaningful, but only within the range of time that political forces are unlikely to have great effect. These projections, based on current measures of demand and demographic projections will serve some of the purposes of a strategy for targeting resources to areas of critical demand for personnel. (See Recommendations #4 and #6 in Chapter VI.)

The Impact of Politics and Money in Shaping the Demand for Personnel Obscures Children's Needs for Services

Decisionmakers in local school districts attempt to meet all the needs of their students for special education and related services. True, many children may have less severe needs resulting from their secondary handicapping condition (such as speech and language problems), but they are still needs that should be served.

The pilot study's examination of local personnel planning and hiring indicated that local decisionmakers weigh available options for meeting service needs, and may decide not to hire if they can work out a satisfactory solution.

Unrevealed demand. Politics and money play a large part in "revealing" the demand for personnel, and in affecting the ability of districts to attract and retain quality teachers (Darling-Hammond, 1987; Hawley, 1986; and Sattler & Sattler, 1985).

Factors that contribute to "unrevealed demand" include: the availability and level of funding for positions, which affect the overall ability of districts to hire; state limitations on numbers of children that can be counted (identified) in particular categorical areas; and representing service needs of children according to their primary handicapping condition only (i.e., with unduplicated, rather than duplicated, counts).

Implication. The real needs of children for services are obscured by estimates of demand derived from counts of budgeted, unfilled vacancies; positions filled; and the certification status of personnel in those positions. (See Recommendation #7 in Chapter VI.)

Unclear Concepts and Terminology Further Complicate Attempts to Pin Down Shortages and Focus Resources

Education Week (Olson & Rodman, 1987) quoted the National Academy of Sciences' 1987 interim report on teacher supply and demand saying that fuzzy concepts and absence of agreed-upon terminology fuel the controversy about whether or not there are teacher shortages. The Personnel Preparation Program faces the same situation.

At present, inferences have to be made for how the federal program defines terms such as supply, demand, shortage, and need. Reading the 1986 amendments does not help much; the language says the program should focus resources in a manner that meets the "demand" for personnel according to identified "shortages." Reading the program's regulatory language, grant announcements, and data collection forms still leaves no basis for distinguishing between demand, shortage, and need. For example, none of these sources makes clear the distinction between the "demand for personnel" and a child's "need for service."

"Supply" is hard to define precisely too. For instance, the "98-199 form" that grantees fill out to report the numbers of persons trained does not distinguish between those who are new teachers and others. Program regulations require an emphasis on "preservice" training, implying a lesser emphasis on special education teachers who are already employed. However, further sleuthing would determine that "preservice" includes new teachers and continuing teachers who are working toward full certification, or certification in a new service category.

Reading grant announcements in each of the priority areas for new and continuation funding implies several connotations for "shortages" that the federal program is trying to address through training support: (1) unmet needs of children for service; (2) market demand that exceeds the existing supply of personnel in particular categories or specialty areas, and in undesirable geographical areas; (3) underrepresentation of minorities in the supply of special education and related services personnel; and (4) inadequate numbers of fully-qualified personnel, including those to meet the needs of newly-identified service groups (e.g., infant service providers).

The pilot study suggested that local districts define shortages in both quantitative and qualitative terms. Shortages included (1) budgeted, unfilled vacancies; (2) positions filled with underqualified staff; and (3) categories of personnel who were especially hard to recruit, and so forth.

Implication. The targeting strategy requires clarification, as do key terms in the law, the regulations, grant announcements, and data collection forms. To do so requires agreeing on: (1) the nature of shortages that can be addressed through training; and (2) realistic expectations for the program's targeting efforts, given the legislative mandate, available resources, and the inability to guarantee that those who complete training will enter the market (supply) for careers in special education. (See Recommendations #1 and #5 in Chapter VI.)

Given these implications, what suggestions are in order? The next chapter presents the study team's recommendations--most for implementation now, some to be implemented over the longer term.

Table 11

The Composite Measures of HIRES:
A Framework for Focusing Future Research

NOTES: All data would be collected by categorical area of special education.
All data would be obtained in Fall of the school year.

Level of Demand NOTE: Each "level" is a measure of local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level (*) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at SEA/LEA Level NOTE: Underline denotes breakouts for data collection. (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 1: Budgeted, unfilled position This measure represents the most critical demand for personnel at the local level. An LEA is unable to fill a position that has been approved by the local Board of Education, for which funding will support a fully-qualified (i.e., certified) individual in that position.	NO HIRE	Geographic location Economic incentives or disincentives District employment requirements (e.g., NTE exam) Recruitment problems	• What is the geographic location of the vacancy? • What is the distribution of vacancies across locations? • How do local salary scales compare with salary scales for competing opportunities? • What incentives/disincentives are in place, and with what consequences for hiring and retaining personnel?	• Persistent vacancies in existing program areas suggest need to increase production in existing training programs. • Data indicate areas of critical shortages.

(*) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

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Table 11 (continued)

Level of Demand NOTE: Each "level" is a measure of a piece of the local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level(***) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at SEA/LEA Level NOTE: Underline denotes breakouts for data collection (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 2: Position filled but with underqualified personnel This measure represents the next most critical demand for personnel at the local level. An LEA is able to fill an approved, budgeted position, but fills it with an individual who is underqualified. "Underqualified" means having less than full certification, i.e., o uncertified personnel o not-fully-certified personnel	HIRE	(**) State certification practices Size/proximity of local supply of personnel (implications for recruitment) State programming policies and priorities Local staffing decisions	Is the person (*)--uncertified? (*)--not fully certified (i.e., having certification, but needing additional credits, e.g., provisionally certified)? Information on these variables is also important to consider in interpreting data on HIRES.	• Indicates areas where training in these specialized skills is needed. • Applying a turnover factor to these numbers may help predict future shortage areas.

(*) Findings from the pilot study suggested that these data are likely to be available from LEAs.

(**) Findings from the pilot study suggested that any effort to determine and interpret current and project demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will have to include data on the key (**) variable associated with the specific "level of demand," and make that data comparable.

(***) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

Table 11 (continued)

Level of Demand NOTE: Each "level" is a measure of a piece of the local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level(***) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at the LEA Level NOTE: Underline denotes breakouts for data collection (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 3: New position filled with fully-qualified personnel This measure represents demand that did not exist before. An LEA creates a new position and fills it with a fully-qualified individual.	HIRE	(See next page.)	Is the person (*)--newly qualified for special education? (*)--from the existing pool of qualified special education teachers (i.e., moving around in the system)?	• Suggests areas where the existing pool is able to meet demand (for now). • Suggests areas where training programs should be maintained or expanded.
			Did the person hired come from an IHE (or LEA) (*)--in the state? (*)--outside the state?	• Has implications for recruiting for various areas of special education. • Suggests extent to which state's personnel production institutions meet local demand for personnel.
			Did the new position arise from (*)--a new program area (with enrollments of students with a "new" or redefined set of handicapping conditions)?	• Suggests new skills are required and perhaps new service delivery models.
			(*)--program expansion (to absorb increases in enrollments)?	• Suggests need to expand personnel preparation in these areas.

(*) Findings from the pilot study suggested that these data are likely to be available from LEAs.

(**) Findings from the pilot study suggested that any effort to determine and interpret current and project demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will have to include data on the key (**) variable associated with the specific "level of demand," and make that data comparable.

(***) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

Table 11 (continued)

Level of Demand NOTE: Each "level" is a measure of a piece of the local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level(***) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at SEA/LEA Level NOTE: Underline denotes breakouts for data collection (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 3: New position filled with fully-qualified personnel (continued)		(**) Student enrollments (within guidelines for minimum/maximum teacher-pupil ratios)	For this position, what is the (*)--maximum allowable teacher-pupil ratio (official state guidelines)? (*)--actual teacher-pupil ratio?	(Although state guidelines for teacher-pupil ratios is a key variable associated with HIRES, it warrants a special study to determine whether and how it will be useful for making decisions about personnel preparation programs.)
		Student eligibility criteria State programming policies and priorities	Information on these variables is also important to consider in interpreting data on HIRES.	

(*) Findings from the pilot study suggested that these data are likely to be available from LEAs.

(**) Findings from the pilot study suggested that any effort to determine and interpret current and project demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will have to include data on the key (**) variable associated with the specific "level of demand," and make that data comparable.

(***) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

Table 11 (continued)

Level of Demand NOTE: Each "level" is a measure of a piece of the local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level(***) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at SEA/LEA Level NOTE: Underline denotes breakouts for data collection (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 4: Existing position filled with fully-qualified personnel				
An LEA fills an already existing position with a fully-qualified individual. For whatever reason that position has been vacated, it represents a demand for personnel.	HIRE		Questions about the person hired are the same as for Level 3 above.	
		(**) Teacher attrition or turnover	Did the vacant position arise from (*)--transfer within district to a non-teaching position or to regular education? (*)--retirment? (*)--death? --transfer out of district, but within special education? --career change?	• Identifies "tough" areas for retaining special education staff, which in turn may require improved training programs (e.g., more and different practicum experience). • High transfer rate (e.g., out of the MR area) may indicate a slackening demand in that area. • Suggests areas where there will be a continuing demand for personnel.
			What are characteristics of persons who vacate positions? --age --number of years taught in the specialty area --certification status --sex	• Suggests point at which turnover stabilizes, e.g., after X years of age, after Y years of service. • Shows where highest attrition rate is (e.g., provisionally certified persons).

(*) Findings from the pilot study suggested that these data are likely to be available from LEAs.

(**) Findings from the pilot study suggested that any effort to determine and interpret current and project demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will have to include data on the key (**) variable associated with the specific "level of demand," and make that data comparable.

(***) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

Table 11 (continued)

Level of Demand NOTE: Each "level" is a measure of a piece of the local demand for personnel. (Refer to Ch. III, Tables 4, 5, 6)	The Proxy for Demand That Is Associated With This Level(***) (Refer to Ch. III, Table 6)	The Variables That Were Associated With HIRES/NO HIRES At This Level of Demand (Refer to Ch. III, Table 6)	Data Questions To Be Answered at the LEA Level NOTE: Underline denotes breakouts for data collection (Refer to Ch.IV, Table 10)	Examples of How the Data May Be Useful for Targeting Resources for Personnel Preparation (and Recruitment) NOTE: Future studies will empirically test the data's utility for decisionmaking.
Level 5: Existing position filled with less-than-quality personnel				
An LEA fills an existing position with a fully-qualified individual, but the district is less-than-satisfied with the person's quality or competence to teach in that position.	HIRE	Quality of supply (appropriateness of IHE training, individual competence)	Unlike Levels 3 and 4, it is strictly the individual in the position and not the nature of the position itself that represents the demand at this level. However, data questions are unfeasible. No one has yet produced widely accepted "quality indicators" that could be applied to determine respects in which a person was ill-prepared or otherwise unable to perform satisfactorily in the particular position for which he or she was hired.	

(*) Findings from the pilot study suggested that these data are likely to be available from LEAs.

(**) Findings from the pilot study suggested that any effort to determine and interpret current and project demand for personnel on a national basis, using HIRES (NO HIRES) as a proxy for demand, will have to include data on the key (**) variable associated with the specific "level of demand," and make that data comparable.

(***) The proxy for demand that the pilot study examined was HIRES/NO HIRES.

VI. Recommendations

The discussion and implications in Chapter V provided the context for the recommendations in this chapter. That context is important for readers to recall when they review and assess these recommendations.

The recommendations are divided into two sets. The first set is for implementation now. In the study team's judgment, they respond to the federal program's mandate to target resources to the demand for personnel to be trained, "based on identified state, regional, and national shortages" (the legislative language).

The second set of recommendations is for implementation over the longer term. They respond to the necessity for OSEP and the Division of Personnel Preparation (DPP) to understand personnel supply and demand in all its complexity. This understanding will improve OSEP's and DPP's ability to (1) interpret data on personnel demand, (2) use the data appropriately for setting program priorities and focusing resources, and (3) justify funding decisions to officials in the Federal Government and to program constituents (e.g., personnel preparation providers, their professional organizations, SEAs).

Recommendations to Implement Now

Recommendation #1. Decide the level(s) of demand that the federal program can address and match data collection to this policy objective.

To meet its legislative mandate, the Personnel Preparation Program must direct its resources to training in "areas of critical demand" to address current and emerging shortages of fully-qualified personnel who are available to provide education and related services to children and youth who are handicapped. The pilot study suggested that (1) "budgeted, unfilled vacancies" and (2) "positions filled with underqualified personnel" represent the most critical, current demand for personnel in the nation's local school districts.

At a minimum, then, the federal program should focus resources on the demand for specific types of personnel that these two indicators represent. This recommendation is also consistent with the federal program's desire to target resources in a manner consistent with local demand.

Implementing this recommendation will require OSEP to consider the:

- utility and currency of data now on hand at the federal level for developing national, regional, and state profiles of demand (e.g., at the minimum target range proposed above)
- adequacy of current data collection and reporting forms that SEAs use to obtain information from local districts and to relay data to the Federal Government

For example, the 1982 requirement to report "positions needed" defined this statistic as a combination of budgeted, unfilled vacancies and positions filled by personnel who are not fully certified. To target as proposed above, the current reporting requirement should have separated these elements: (1) unfilled positions; (2) positions filled with uncertified personnel; (3) positions filled with not-fully-certified personnel.

However, pilot study data suggested that, even with appropriate breakouts, these numbers are insufficient for identifying local shortages. Additional, qualitative information is required to determine the specific nature of the shortage, and whether or not it can be addressed by training. This additional information includes variables that affect local personnel planning and hiring decisions and the ability to meet the local demand for personnel. These variables include geographic location and economic incentives/disincentives (data relevant to demand that is represented by "budgeted, unfilled vacancies"); and certification practices, size and proximity of local supply of personnel, and programming policies and priorities (data relevant to demand that is represented by "positions filled with underqualified personnel").

Of course, there is no guarantee that local districts will replace underqualified personnel with fully-qualified applicants if they become available, or that newly-graduated and fully-qualified individuals will

actually enter the special education careers for which they are trained. These are examples of ambiguities on the demand side and the supply side, respectively.

Finally, abandon or drastically reduce current reporting requirements of SEAs if these data are not useful for targeting or for other OSEP purposes. If the data are useful, clarify for what; if some data are virtually useless or have marginal utility, drop those requirements, pending further study. (See Recommendation #6.)

Recommendation #2. In the absence of useful data for predicting teacher supply and demand in a national market, use inexpensive methods that obtain a "quick fix" on areas of current and emerging demand.

A small-scale survey of a representative sample of local districts (LEAs), high-producing institutions of higher education (IHEs), and states (SEAs) with good data and data systems might yield a profile of local, regional, and national demand for personnel that provides a view similar to that of large-scale, definitive, costly studies. Periodic surveys and pilot studies (such as this one) seem to be a feasible way to monitor supply and demand for special education personnel.

For example:

- The pilot study suggested that local special education decision-makers define their demand for personnel in terms of numbers and service needs of children. They can (1) identify the areas in which they are currently experiencing shortages, (2) indicate the magnitude or severity of a shortage, and (3) identify the nature of applicants' and staffs' deficiencies for meeting children's needs in the local service setting.

- Telephone calls to a sample of high-producing IHEs representing states or regions of the country could determine what recruiters who contact them are looking for. Learning that every graduate of a particular specialty area has three job offers, for example, would suggest that the specialty is in short supply relative to demand.

- SEAs with relatively sophisticated data systems, whose files retain links to each LEA, may be able to produce within-state regional profiles of current supply and demand for special education personnel, possibly with breakouts by category, specialty area, or handicapping condition.

Data can be analyzed to obtain rough estimates by special education category of (1) the magnitude, nature, and trends for service needs, (2) the demand for qualified personnel trained to meet those needs, and (3) "projected" shortages (from time series data). The analysis should identify, to the extent possible, the service delivery needs that can be met through a training function.

To determine the merits or drawbacks of this approach (or alternative options),* consider the following:

- Does it provide information that
  - is useful for identifying shortage areas?
  - identifies the nature of children's needs for specific kinds of services?
  - suggests the nature of training required to qualify a person to provide those services?
  - is useful for defining and selecting priority areas for funding ("competition areas")?
  - is useful for apportioning funds among competition areas?
  - is useful for making grant award decisions?
- Is the effort worth the time and cost?
- Is it acceptable to program officials? to those to whom they are accountable? to program constituents?
- To what extent is the information objective, verifiable, and reliable?

* A useful discussion of criteria for evaluating options for information systems is in "The Development of An Information System to Identify Rehabilitation Personnel Shortages: Suggested Options" (Hastings, Hayward, & LeBlanc, 1984).

Implement this recommendation in collaboration with the recently funded Clearinghouse on Careers and Employment in Special Education. The Clearinghouse is developing and field testing promising methods for gathering good data to use for estimating current and projected personnel shortages.

Recommendation #3. Plan data collection in collaboration with SEAS, LEAs, IHEs, and major professional organizations.

Whenever federal requirements call for new or modified data collection, develop plans in collaboration with SEAs that have good data systems (including CSPD), and with expert representatives from LEAs, IHEs, and major national professional organizations and their task forces and committees (e.g., NASDSE, CEC, HECSE, ASHA).

Representatives of the first two groups (SEAs and LEAs) participated in this pilot study and provided insights for interpreting personnel data and for building a good data system. Representatives of the last two groups (two consultants who were formally and informally associated with IHEs and major national professional organizations) commented on the design for the pilot study and reviewed a draft of the present report. All of these individuals share credit for the list of specific suggestions that follows.

For new data collection, work with SEA/LEA representatives to agree on:

- questions to be answered by the data. (This will ensure that data address questions of interest to SEAs and LEAs and will provide national, regional, and state-by-state information that is of use at federal, state, and local levels.)
- how to design/modify data collection forms. (The reporting format should serve a variety of purposes.)
- amount of lead time that SEAs and LEAs need to prepare for data collection
- availability and costs of obtaining useful data
- feasibility of obtaining data or other information that may be related to "unrevealed" demand--demand that is not apparent from only the counting and reporting of numbers. Relevant data and information include certification practices, status

of child-find activity, enrollment caps on certain handicapping conditions, maximum teacher-pupil ratios vs. actual teacher-pupil ratios (by handicapping condition or area), grouping for instruction, demographic factors, and recruitment difficulties.

- minimizing burden at the school building level. (Otherwise, the data collection could hinder the efforts of local personnel to provide adequate special education and related services to students.)

- nature, form, and delivery of technical assistance in how to fill out new forms

During the above planning process, obtain feedback from the supply side--representatives of IHEs and professional organizations, which represent important constituencies for the federal program. The purpose of involving them is to decide whether the data to be reported, the distinctions in reporting it, and the questions to be answered can tell IHEs anything that will help them to:

- improve their personnel preparation programs

- decide whether they need to cut back programs in some areas and build up programs in other areas

- improve and focus recruitment and incentives

For example, distinguishing between new and existing positions, and among sources of hires, conceivably will help IHEs market to different groups of prospective students, and would aid their decisionmaking in modifying and scheduling their offerings.

In addition, ask IHEs whether or not they use such data in their attempts to estimate demand for personnel as a basis for program planning. Obtain their reasons for using different kinds of data. Obtain their perspectives on the utility of the data given the variations across school districts.

Finally, administer future data collection through a state's CSPD "operation." However, the success of the effort will depend on federal leadership--support, encouragement, and technical assistance.

Recommendation #4. Conduct feasibility studies of statistical means for improving the utility of available data.

Such studies could be modest but very creative efforts, subject to validation in a larger future study. For example, the analysis of sample data in this report demonstrates the feasibility of a "ratio estimation" method to produce national estimates of demand.

Examples of additional feasibility studies of statistical manipulations of data include:

- ways of adjusting certain data elements to correct for known tendencies toward over- or underestimation of demand
- ways of making data comparable for use in making national, regional, and statewide estimates of demand to identify critical areas of shortage
- developing a series of ratio and difference measures which considered jointly could describe a district's special education staffing situation
- how far into the future projections can be made that provide useful data for targeting and for long-range planning

Recommendation #5. Agree on definitions of terms that the Federal Government uses in statements about targeting critical areas of demand for personnel.

In this pilot study, these were relevant definitions:

demand — In the economic sense of "supply and demand," the quantity of a commodity or service wanted at a specified price and time, e.g., services provided by special education personnel

In special education, demand for personnel is driven by enrollments (numbers of special education students and their handicapping conditions), and by the amount of federal funding (PL 94-142) that reaches the local district.

In the pilot study, "demand" was equivalent to the "need to hire." In turn, the need to hire (and the

outcomes of the hiring process) were associated with five levels of demand:

Level 1: Budgeted, unfilled positions

Level 2: Positions filled but with under-qualified personnel

Level 3: New positions filled with fully-qualified personnel

Level 4: Existing positions filled with fully-qualified personnel

Level 5: Existing positions filled with fully-qualified but less-than-quality personnel (qualitative issue of a certified individual's teaching competence)

need — the requirements of children and youth for special education and related services

The pilot study avoided using "need" as a synonym for "demand." It distinguished between the need for services (by those who are handicapped) and the demand for personnel (the need to hire).

shortages — budgeted, unfilled positions for special education and related services personnel

In the pilot study, SEAs and LEAs extended this definition of "shortages" to include positions filled with personnel who were underqualified (uncertified or not fully certified). The LEAs extended it even further to include categories of personnel who were difficult to recruit (hard to find, in limited supply).

supply — the quantity of a commodity or service offered for sale at a specified price and time, e.g., services provided by special education personnel

In special education, the supply of personnel within a state comes from four major pools:

(1) new teachers (college graduates, including newly-certified teachers)

(2) former teachers (re-entering special education careers)

(3) continuing teachers

(4) out-of-state teachers

HIRE — a vacancy in a position, which is filled with personnel as a result of the local planning and hiring process

In the pilot study, HIRE(S) as a single measure was not an accurate estimate of demand, but rather a composite of several measures, each of which had to be examined separately. Each component measure, in turn, was associated with variables that required examination. (For example, the component measure of "position(s) filled with underqualified personnel" requires that the associated variable of "state certification practices" be examined.)

NO HIRE — a vacancy in a position, which remains unfilled as a result of the local planning and hiring process

a budgeted, unfilled position representing a critical demand for personnel

revealed demand — the demand for personnel that is apparent from the counting of budgeted vacancies, current staffing levels by category

unrevealed demand — the demand for personnel that is not apparent from such counts

An example of unrevealed demand is using unduplicated vs. duplicated counts of students and their primary/secondary handicapping conditions to determine the number of personnel required to provide services.

Use the agreed upon terms consistently in data collection forms, grant announcements, internal planning documents, program regulations, and public statements. For example, the 1982 regulations ask SEAs to report additional positions "needed" for the current reporting year, and instruct SEAs to include in that figure "positions open but not filled" and "positions filled with uncertified personnel." As worded, the request obscures concepts and data elements that the above definitions clarify.

Recommendations to Implement Over the Longer Term

Recommendation #6. Work closely with the new Clearinghouse,* and support new studies when appropriate, to systematically build a comprehensive data base that is useful for targeting current and emerging demand for personnel.

This is a long-term investment in information that could improve OSEP's and DPP's understanding of (and access to information about) factors that influence the magnitude and nature of demand. Understanding how these important factors affect the balance of the supply-demand equation will help OSEP and DPP to: (1) interpret and use data on demand for targeting federal training resources, and (2) provide documentation of their decisions to officials in the Federal Government and to program constituents in the personnel preparation system. (These are assumptions to verify empirically.)

The key elements of this recommendation are:

- an organizing framework
- a coordinated approach
- an active working relationship with the Clearinghouse on Careers and Employment in Special Education
- information gaps that call for collaboration now

An organizing framework. Table 11, at the end of the preceding chapter, offers a possible framework for systematically gathering information and augmenting a database on personnel demand in special education. It provides a structure and logic which build on the pilot study's analysis of the local personnel planning and hiring process and its outcomes (the HIRES model and its associated variables).

* The 1986 amendments to the Education of the Handicapped Act established a national Clearinghouse on Careers and Employment in Special Education. Its broad purpose is to organize, assess, disseminate, and promote the use of timely, reliable information that pertains to career choice, conditions of employment, and identified needs for special education and related services personnel. The major groups of institutional clients are local and state education agencies (LEAs, SEAs) and institutions of higher education (IHEs).

A framework should also be developed for examining personnel supply. (The new Clearinghouse may be doing that.)

A coordinated approach. Conducting further studies depends upon answers to questions such as those the Clearinghouse will consider as it organizes and assesses the quality and utility of existing information on personnel supply and demand: What is already known? Is it useful for identifying current and emerging shortages? Can deficiencies in the information be remedied through existing data collection and reporting mechanisms, or is a new study the best strategy for improving the data? What are promising sources for the desired data?

Answers to these questions will suggest appropriate next steps, which are apt to include more than one approach. Thus, it makes sense for OSEP, DPP, and the Clearinghouse to coordinate future quests for data.

An active working relationship between OSEP/DPP and the Clearinghouse. Officially, DPP is responsible for administering the Clearinghouse contract. However, a formal agreement of the working relationship might establish the federal program as an important client, one which stands to benefit from the database and expertise the Clearinghouse will develop.

Information gaps that call for collaboration NOW. A working relationship is best exemplified by collaborating to address critical information needs, such as:

- the nature and variation among states' certification requirements. The Clearinghouse may already have obtained this existing information from the Council for Exceptional Children (CEC) and other sources.

- the nature of the supply side of the supply-demand equation. Information gaps include the sources of supply; the size and characteristics of these pools; the probability that members of each pool enter careers in special education for which they were trained; whether current trainees are new or continuing teachers; the certification status and attrition/turnover rates for special education teachers who are currently employed special education teachers; relationships among factors such as certification status and attrition, age and attrition, and so forth.

- forecasting models. One major problem of existing models is the inability to represent the effects of market mechanisms that may be implemented to offset shortages and tight budgets, e.g., exceed desired class sizes; allow less-than-fully certified personnel to fill slots; modify programs (Olson & Rodman, 1987). Another serious problem for model builders is providing the lead time the personnel preparation system requires to design and test training models that equip personnel to provide quality services--plus the years it takes for trainees to graduate.

Further considerations. Future research and information on personnel demand must also account for the following, in addition to the data and information that Table 11 includes:

- funding and enrollments. This report has emphasized the overriding importance of these two variables in shaping the number and nature of available positions (filled and unfilled).
- the base number of positions (filled and unfilled). This would tell the Personnel Preparation Program (and IHEs) the size of the market, where the jobs are, and how they are changing.
- a regular education baseline. Educating policymakers about areas of critical demand for special education personnel will be easier if they can compare that data against similar information for education in general. For example, math and science are two areas of regular education widely acknowledged to be suffering severe shortages of fully-qualified teachers. However, comparable data for special education reveal dramatically greater shortages for certain categorical areas (Lauritzen, 1986).

Whatever focus a new study might take, any data collection should include both LEAs and SEAs. As the pilot study demonstrated, inquiry at the local level helped to get beneath the numbers and labels, to clarify concepts and terminology, and to reveal the hows and whys. But inquiry at the SEA level is also essential.

For example, SEA data linked to individual LEAs may be available for analysis, and for comparison with data obtained from LEAs in the study. For the study component that focuses on Level 2 demand (positions filled, but with underqualified staff), inquiry at the SEA level is important because state guidelines and requirements obviously affect local programming, personnel

planning and hiring, and staffing practices. What do individual states allow with regard to placing personnel who are underqualified in classrooms? What is the range of definitions across the states for personnel who are underqualified? What programming policies are connected with policymaking and underqualified personnel? Inquiry at the SEA level will enable cross-state comparisons regarding certification practices, definitions, policies.

Collecting data by categorical area is also important. To examine personnel demand in states that are noncategorical will require special consideration. For example, a study of state certification practices might obtain data on qualifications of teachers and data on the types of students they are teaching.

Recommendation #7. Seek a viable and acceptable way to base estimates of personnel demand on the needs of children and youth for special education and related services.

This recommendation could be implemented as part of Recommendation #2 ("small-scale surveys and pilot studies"); it is intended to supplement existing sources of information.* Following is the rationale for doing so.

The federal program wants to support the preparation of personnel to meet demand at the local level, and to establish priorities based on actual needs of the field. Therefore, a targeting strategy to accomplish this must be based on data and information that express the magnitude and nature of that local demand.

The pilot study suggested that local districts define their demand for personnel this way: "teachers with certain qualifications and competencies

* The federal program solicits advice from knowledgeable professionals in the field prior to defining annual priorities, and requires "needs statements" and supporting documentation in grant applications to justify grant support. The federal program has relied to a large extent on experts' and grant applicants' assessments of personnel demand in the absence other useful and widely accepted data. (Neither states' CSPD plans nor statistics in their annual data reports have been adequate for this purpose.)

who can meet the particular configuration of children's needs that defines the position they are being hired to fill."

This very important qualitative information was masked by statistics such as those the pilot study produced, which were based on numbers of budgeted vacancies that were filled or not filled, and on numbers of qualified or underqualified "hires."

Being able to estimate the number of NO HIRFS and HIRES does not reveal enough about children's service needs to suggest a focus for federal training funds (i.e., the kinds of training and training models that might produce graduates with the desired qualifications).

The study team recognizes that implementing some of the above recommendations will entail a selling job for OSEP with its constituencies (IHEs, SEAs, major professional organizations which influence the field), and within the Department of Education. The next chapter discusses points that may be raised when debates occur, and identifies positions that OSEP may or may not wish to take regarding the federal role.

VII. Further Considerations

This chapter presents considerations that reflect discussions with the work group and the two consultants for the strategy evaluation, with some of the interviewees in the pilot study, and among members of the study team. The purpose of including this in a closing chapter to the final report is to focus further discussion among OSEP staff as they consider how best to implement recommendations from the strategy evaluation.

Should OSEP Bypass SEAs to Obtain Data?

SEAs in the pilot study and experts who have studied personnel supply and demand in special education acknowledge that personnel data collection has not been a high priority in any state. They also comment that the great variation in how states collect data presents problems for obtaining useful information through SEA channels for a national (central) data system.

Without proposing an "SEA-bypass" alternative, earlier chapters described a restricted set of data (HIRES/NO HIRES and certain other variables) that were likely to be available from LEAs. Local decisionmakers used the information to determine the need to hire special education personnel. SEAs used the LEA data and other information selectively to answer questions of importance to the SEA or the legislature. Although some of the data elements had originally been linked to individual LEAs and even to individuals, there was no way for parties outside the SEA to access the original (linked) data files directly by computer, nor to purchase files for independent analysis.

SEAs that participated in the pilot study had been chosen because they represented "the best" among those SEAs reputed to know how to develop and maintain good data systems for analyzing personnel supply and demand. They had become extremely proficient in designing data collection forms and procedures that yielded close to 100% response rates and accurate LEA reporting. They had developed strong credibility with their LEAs by providing useful feedback and assistance.

For any special data collection that bypasses the SEA, especially in states where SEAs have established credibility with LEAs, it will be vital to involve SEA staff in promoting the effort. But it may be unrealistic to expect SEAs to support such an effort wholeheartedly, with the enthusiasm and commitment that can make their own data collection efforts successful.

From What Level Should Targeting of Federal Resources Be Pursued?

Whatever position OSEP takes on this question must have a rationale, that is, an underlying logic consistent with the goals and objectives of the Personnel Preparation Program.

The goal evaluation documented the rationale for a federal role in personnel preparation, and articulated the program's logic (Campeau, et al., op. cit.). The following overview of these logical antecedents and underpinnings is included here in abbreviated form to provide a context for considering the present question.

> Why is there a Personnel Preparation Program at all? Why not leave universities, states, and local education agencies (LEAs), or others entirely to their own devices to train personnel to provide education and related services to children and youth who are handicapped?
>
> The reasoning proceeds that these children will not have an opportunity to achieve their full potential unless three conditions are met: (1) there are sufficient numbers of qualified personnel specially trained to provide them the benefits of effective and appropriate education; (2) the quality of such specialized personnel is sufficient; and (3) the system for personnel development has the capacity to meet the demands for both quantity and quality of specially-trained personnel.
>
> If left to its own devices, the reasoning goes, the system will not attain these three aims in a timely fashion nor in a comprehensive enough manner without external stimuli. In short, the appropriate role for the Federal Government is a catalytic one.
>
> For example, the Federal Government is in a uniquely advantageous position to: highlight priorities of national concern; muster resources and information on behalf of the system as a whole; provide a national perspective on current and emerging needs (at all levels) for particular types of specialized personnel, model programs, curricula, etc.; identify and encourage replication of state-of-the-art practices in personnel preparation; and maintain national visibility for special education personnel development (all levels).

The ultimate beneficiaries of the Federal Government's investment in personnel preparation programs are children and youth who are handicapped. On their behalf, the program holds itself accountable for three objectives: (1) produce more qualified personnel, (2) improve the quality of personnel trained, and (3) expand the capacity of the system for personnel development.

In the goal evaluation, the work group identified eight major strategies that the Personnel Preparation Program uses to achieve these objectives. One strategy is targeting federal program resources to critical areas of demand for personnel, both current and future. This strategy is directed at the first program objective: "to produce more qualified personnel." The rationale is that directing program resources to personnel preparation efforts in areas of critical demand will make available more of these types of qualified personnel.

Up until now, this targeting strategy has been orchestrated from the federal level through grants from the Personnel Preparation Program. Nearly all grantees are institutions of higher education (IHEs) or state education agencies (SEAs), but mainly IHEs (the supply side of the personnel supply/demand equation). This presents the federal program with the following challenge for implementing its targeting strategy: target resources to meet local demand for fully-qualified personnel when the vehicle for doing this is a supply-side grant program.

A variety of activities that OSEP divisions administer, including certain grants from the Personnel Preparation Program in the Division for Personnel Preparation, seek to build states' capacity to identify and meet their own needs for special education and related services personnel. Findings and conclusions from the pilot study suggest that, while this may be a plausible strategy for defining and addressing current demand for various kinds of personnel and service delivery approaches, it is questionable whether such a strategy will work for meeting projected demand.

The plausibility issues include:

- difficulties like those the SEAs in the pilot study experienced in attempting to forecast demand for specific kinds of personnel

- the unknown nature of new or future models for improved service delivery that IHEs will pioneer
- uncertainty that SEAs can exert sufficient leverage on IHEs to direct their R&D efforts to areas of demand for personnel trained in particular ways and for particular types of service delivery
- lack of capacity and resources of SEAs and LEAs for conducting R&D that is national in scope and concern, or for designing and testing models in a comprehensive way
- scarcity or total absence of special education leadership personnel in SEAs
- severe resource problems that SEAs and LEAs experience as a result of competition for scarce funds, and shifting or conflicting priorities for serving students

What this suggests is consistent with observations from the earlier goal evaluation phase. These observations were that the Federal Government is in a uniquely advantageous position to use its considerable resources and capacity to:

- conduct research that is national in scope, concern, and consequence
- ensure that model program dissemination is national in scope and impact
- stimulate IHEs to address a national personnel preparation agenda in innovative ways, and to lead the field
- support personnel preparation programs that do not attract sufficient numbers of individuals to justify their costs to IHEs. (This is especially true for emerging roles in special education and for specialities that address unique needs of relatively small subgroups of the population of children and youth who are handicapped.)
- support IHEs' efforts to attract, retain, and graduate adequate numbers and types of doctoral and postdoctoral leadership personnel, who will promote state-of-the-art practice in personnel preparation at all levels
- stimulate IHEs to promote institutional change within their own boundaries. (Too often, educational institutions become rigid and inbred, losing sight of the practical realities of the field.)

In other words, an argument can be made that IHEs are where leadership personnel and innovators are most likely to reside, and where capacity lies, given a boost of federal funding through grants from the Personnel Preparation Program. Quality and leadership among IHE personnel will affect the quality and characteristics of the overall supply of personnel in special education.

This argument also acknowledges that the federal level exerts significant leverage on the field by setting priorities and directing resources in ways that influence system priorities.

References

Campeau, P. L., Appleby, J. A., & Stoddart, S. (1987, March). Final goal evaluation report. Palo Alto, CA: American Institutes for Research.

Darling-Hammond, L. (1987, January 14). What consititutes a "real" shortage of teachers? (Commentary). Education Week, p. 29.

Hastings, A. H., Hayward, B. J., & LeBlanc, L. A. (1984). The development of an information system to identify rehabilitation personnel shortages: Suggested options. Washington, D.C.: Advanced Technology and Policy Studies Associates.

Hawley, W. D. (1986). Toward a comprehensive strategy for addressing the teacher shortage. (The Teacher Shortage). Phi Delta Kappan, 67(10), pp. 712-718.

Lauritzen, P. (1986 and 1987). Comprehensive assessment of service needs for special education in Wisconsin. (A study of personnel and service needs.) Whitewater, WI: University of Wisconsin, Wisconsin Handicapped Needs Assessment Project.

McLaughlin, M. J., Smith-Davis, J., & Burke, P. J. (1986). Personnel to educate the handicapped in America: A status report. College Park, MD: Institute for the Study of Exceptional Children and Youth, Department of Special Education, University of Maryland.

Olson, L., & Rodman, B. (1987, June 24). Is there a teacher shortage? It's anyone's guess. Education Week, 6(39), pp. 1, 14, 16.

Roth, R. A. (1986). Emergency certificates, misassignment of teachers, and other "dirty little secrets." (The Teacher Shortage). Phi Delta Kappan, 67(10), pp. 725-727.

Sattler, F. L., & Sattler, J. L. (1985). Economic realities of special education. Teacher Education and Special Education, 8(2), pp. 98-103.

Schofer, R. C., & Davis, D. E. (1986, November). An inquiry into personnel projections, attrition and certification in special education. Counterpoint, p. 8.

Schofer, R. C., & Duncan, J. R. (1984). A national survey of comprehensive systems of personnel development: A fifth status study. Columbia, MO: University of Missouri.

Smith-Davis, J., Burke, P. J., & Noel, M. (1983). Personnel to educate the handicapped in America: Supply and demand from a programmatic viewpoint. College Park, MD: University of Maryland.

Smith-Davis, J. (1985). Hearing on reauthorization of the EHA Discretionary Programs. (A prepared statement for the Subcommittee on Select Education, Committee on Education and Labor, U.S. House of Representatives.)

Yates, J. R. (1987, May). Current and emerging forces in special education: Part 1. Counterpoint, pp. 4-6.

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American Institutes
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Evaluation of Discretionary Programs Under the Education of the Handicapped Act: Personnel Preparation Program

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A project of American Institutes for Research
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Technical Appendices to the Final Strategy Evaluation Report

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APPENDIX A

Executive Summary for the
Final Goal Evaluation Report:
Personnel Preparation Program

Evaluation of Discretionary Programs
Under the Education of the Handicapped Act:
Personnel Preparation Program

A Project of
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as subcontractor to COSMOS Corporation

Final Goal Evaluation Report

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EXECUTIVE SUMMARY

This summary highlights findings and conclusions of a goal evaluation of the Personnel Preparation Program, administered by the Division of Personnel Preparation (PPP), one of five divisions in the Office of Special Education Programs (OSEP) in the U.S. Department of Education's Office of Special Education and Rehabilitative Services (OSERS).

Overview of the Personnel Preparation Program

The program was authorized in 1970 under Part D of the Education of the Handicapped Act (P.L. 91-230), although the history of federal involvement in the preparation of personnel to work with the handicapped goes back nearly 30 years.

The present program, which is the largest of the discretionary programs in OSEP, has received total appropriations of over $800 million since 1966 for the purpose of increasing the number of fully qualified persons that are available to provide education and related services to handicapped children and youth. Appropriations exceeded $60 million each year in FY85 and FY86, and the authorized funding level for FY87 exceeds $70 million.

The Personnel Preparation Program awards grants that may be renewed annually for up to five years (three years, generally). Grantees may be institutions of higher education (IHEs), state education agencies (SEAs), or other appropriate nonprofit organizations, who may use their funds in these major ways: to develop, improve, and support personnel preparation programs (and to provide financial assistance to participants in these programs); to develop, evaluate, and disseminate models with broad significance for the field of personnel preparation; and to provide technical assistance and information to training providers, including parent organizations, so that they will be able to meet effectively the needs of children and youth for specialized educational and related services, and to interact effectively with the system on their behalf.

In FY86, OSERS announced 10 priorities for competition: (1) preparation of special educators; (2) preparation of related services personnel; (3) parent organization projects; (4) preparation of personnel to provide special education and related services to newborn and infant handicapped children; (5) preparation of leadership personnel; (6) special projects; (7) state education agency (SEA) projects; (8) preparation of personnel to work in rural areas; (9) preparation of personnel for minority handicapped children; and (10) regular educators. Not all published priorities need be announced for new grant competition each year; for example, the "transition" priority was not announced for new grant competition for FY86.

Overview of the Goal Evaluation Process

The goal evaluation had three purposes. One purpose was to determine the degree to which those strategies the federal program intends to pursue through the above major types of grant activities are actually being implemented by grantees. The second purpose was to determine, to the extent that data available to the study team permitted, if the Personnel Preparation Program is achieving its objectives. Third, the goal evaluation developed information to show if funded activities can logically and plausibly produce the outcomes desired by the program, even if actual evidence of these outcomes is insufficient.

The goal evaluation process drew heavily on the assistance of OSEP staff and management. Throughout, the task leader met with a work group composed of managers and staff representing the program, OSEP, and Office of Planning, Budget, and Evaluation (OPBE). They helped to develop some of the study's products, and reviewed and critiqued others. Their knowledge of the Personnel Preparation Program and its policy context, and the time they invested to make sure that this collective effort stayed on track, were essential to the pertinence and utility of the goal evaluation process.

The evaluation approach consists of two parts: a goal evaluation and a strategy evaluation. This summary pertains to the goal-oriented phase of the evaluation, which is now complete.

The main steps in the goal evaluation included: (1) documenting the program's logic and underlying assumptions; (2) conducting project reviews of a representative sample of 57 projects, with data collection emphasizing depth in areas important for a program analysis of this type; (3) analyzing program implementation, performance, and plausibility; and (4) drawing conclusions and framing recommendations for program management, OSEP, and the work group to review in preparation for planning the second, strategy-oriented phase of the evaluation.

Program Objectives and Logic

The work group reached a consensus on the following statement of the Personnel Preparation Program's ultimate goal and objectives:

> Ultimate goal: To enhance education and related services for handicapped children and youth through the preparation of specialized personnel

"Specialized personnel" means any personnel, including regular educators, who have the knowledge and skills necessary to deliver such services to this broad target group. Using the word "enhance" deliberately implies that (1) fully achieving "free and appropriate public education" for handicapped individuals is beyond the direct control or resources of the federal government and, in turn, the program and that (2) appropriate roles for the program are complementary and catalytic ones.

To achieve its ultimate goal within these two caveats and those in the authorizing legislation and regulations, the Personnel Preparation Program directs its efforts to three enabling objectives:

- To produce more qualified personnel to serve children and youth who are handicapped
- To improve the quality of personnel trained to serve children and youth who are handicapped
- To expand the capacity of the system for personnel development

The Personnel Preparation Program utilizes eight major strategies to attain these three objectives:

1. Supporting recruitment and retention
2. Targeting critical needs
3. Supporting model program development, evaluation, and dissemination
4. Supporting leardership development
5. Encouraging state and professional standards
6. Supporting parent organization projects
7. Building capacity
8. Promoting institutionalization

Figure 1 portrays the logic of the overall program. It shows the relationships among events that influence program design, implementation, and capacity to meet these objectives. Figure 2 shows the relationship among federal strategies, grant activities, and program objectives. The causal assumptions implied by the two figures are made explicit in the full report of the goal evaluation.

These major points are relevant to the Figures 1 and 2:

- The Personnel Preparation Program pursues particular <u>strategies</u> through activities that grantees carry out at the state, institutional, and local level. (These strategies and activities are the row and column labels, respectively, in Figure 2.)
- Thus, the grant programs are the primary mechanism for implementing federal strategies and legislative intent.
- The matrix conveys the expectation that, in aggregate, (1) projects in a particular priority area will contribute more to one program objective than to the other two, and that (2) the means they implement will be congruent with the federal strategy(ies) that are "attached" to that objective.
- It is possible to focus grant competitions (for selected priorities) to accommodate one or more of the strategies (and program objectives).

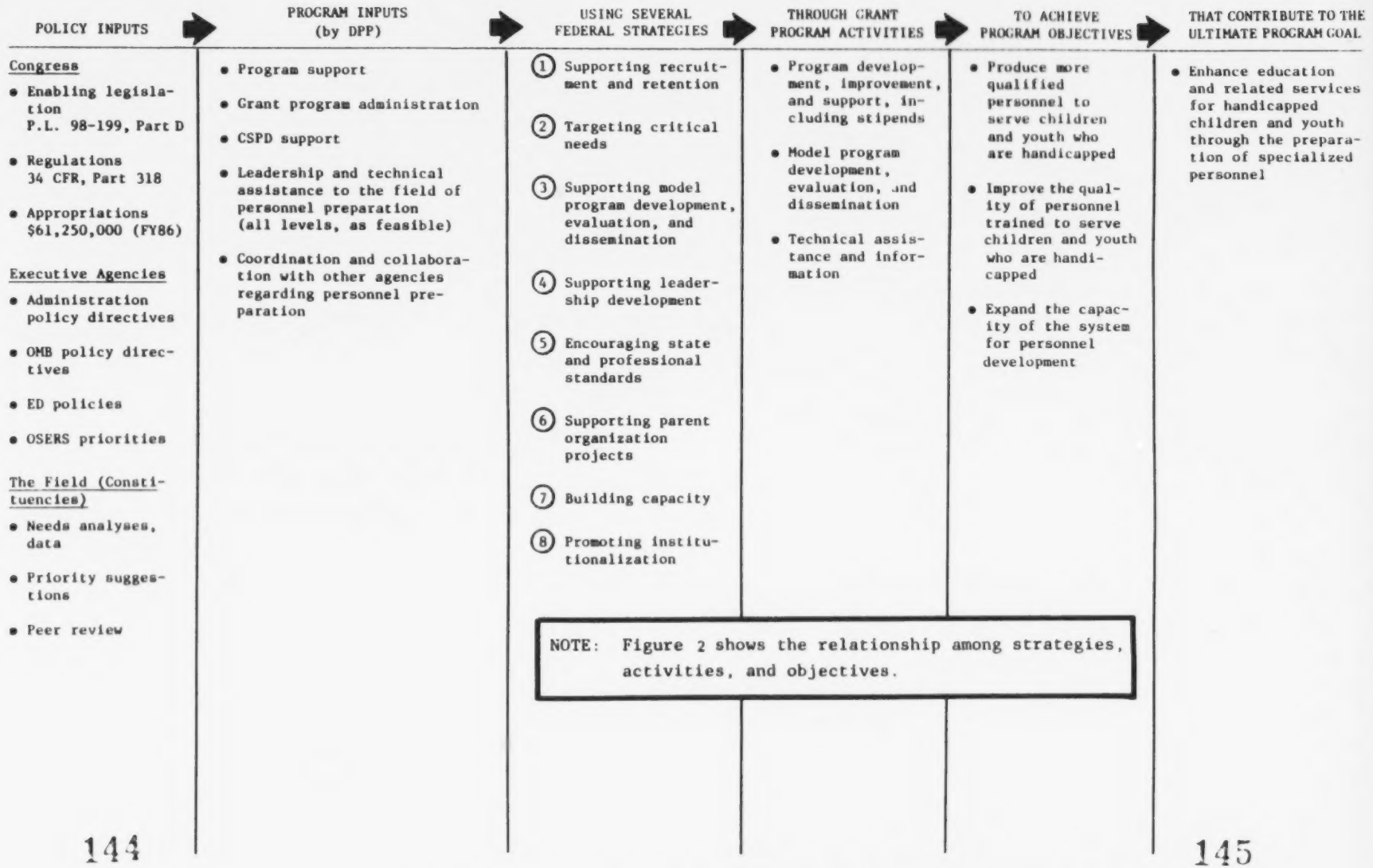
POLICY INPUTS
PROGRAM INPUTS (by DPP)
USING SEVERAL FEDERAL STRATEGIES
THROUGH GRANT PROGRAM ACTIVITIES
TO ACHIEVE PROGRAM OBJECTIVES
THAT CONTRIBUTE TO THE ULTIMATE PROGRAM GOAL
Congress
• Enabling legislation P.L. 98-199, Part D
• Regulations 34 CFR, Part 318
• Appropriations $61,250,000 (FY86)
Executive Agencies
• Administration policy directives
• OMB policy directives
• ED policies
• OSERS priorities
The Field (Constituencies)
• Needs analyses, data
• Priority suggestions
• Peer review
• Program support
• Grant program administration
• CSPD support
• Leadership and technical assistance to the field of personnel preparation (all levels, as feasible)
• Coordination and collaboration with other agencies regarding personnel preparation
1 Supporting recruitment and retention
2 Targeting critical needs
3 Supporting model program development, evaluation, and dissemination
4 Supporting leadership development
5 Encouraging state and professional standards
6 Supporting parent organization projects
7 Building capacity
8 Promoting institutionalization
• Program development, improvement, and support, including stipends
• Model program development, evaluation, and dissemination
• Technical assistance and information
• Produce more qualified personnel to serve children and youth who are handicapped
• Improve the quality of personnel trained to serve children and youth who are handicapped
• Expand the capacity of the system for personnel development
• Enhance education and related services for handicapped children and youth through the preparation of specialized personnel
NOTE: Figure 2 shows the relationship among strategies, activities, and objectives.
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Figure 1. Personnel Preparation Program Logic Model

PROGRAM OBJECTIVES/ FEDERAL STRATEGIES	GRANT ACTIVITIES		
	Program Development, Improvement, and Support, Including Stipends	Model Development, Evaluation, and Dissemination	Technical Assistance and Information
Produce more qualified personnel ... (1) Supporting recruitment and retention (2) Targeting critical needs areas	Special Educators ① ② Related Services ① ② Rural ① ② Infant ① ② Transition ① ② Minority ① ② I		
Improve the quality of personnel ... (3) Supporting model program development, evaluation, and dissemination (4) Supporting leadership development (5) Encouraging state and professional standards	II Leadership Projects ④	Special Projects ③ III	
Expand the capacity of the system for personnel development ... (6) Supporting parent organization projects (7) Supporting improvements in system capacity (8) Promoting institutionalization	IV Regular Educators ⑦ SEA Projects ⑦		Parent Organization Projects ⑥ V

Figure 2. The Intended Relationship Among Program Objectives, Federal Strategies, Grant Activities, and Primary Foci of Competitions (FY86)

- The essential core of grantmaking activity is represented by the five clusters of primary activity depicted in Figure 2 (see Roman numerals in five cells).

- Cell entries indicate the main emphasis of FY86 grant activity. These clusters might be consituted differently, depending upon how each competition area is defined for a particular fiscal year.

The (above) gross classification scheme that Figures 1 and 2 provide served two purposes in the goal evaluation. One was to show the Personnel Preparation Program's overall strategic plan, where the federal investment in grants is intended to generate the most mileage toward one of the three objectives. (The work group realized that projects will implement strategies in addition to those shown as their primary emphasis in Figure 2.) The second purpose of the classification scheme was to provide the conceptual underpinnings for planning data collection and analyses.

Data Collection Approach and Related Caveats

The study team carried out 57 confidential project reviews, in which the primary data sources were information in grant files and 75-minute (average) focused telephone interviews with project directors and/or principal investigators. (One project was dropped because available information was too minimal to include it in subsequent analyses.)

The study sample consisted of subsamples drawn from each of the program's priority areas, shown as cell entries in Figure 2. For the most part, projects were drawn at random from FY86 continuations whose initial year for their current grant was FY84.

Restricting data collection to currently operating projects, most of which began in FY84, ensured that they had been running long enough to have learned lessons from their implementation experience that would be very informative for a program analysis of the type conducted in a goal evaluation. Also, better cooperation was expected from project staff whose projects were currently operating than from projects that had been completed or discontinued.

On the other hand, data collection from "live" projects necessarily restricted the study to conclusions on prospective program performance supported by evidence that grantees said they were collecting or were likely to present in their final performance reports.

These additional caveats apply to conclusions from the goal evaluation:

- It is not within the scope of a goal evaluation to collect primary data on project accomplishments, or to capture all relevant perspectives. Project reviews rely on two major secondary data sources: initial and continuation applications in grant files, and interviews with project directors or principal investigators. Although interviews were conducted on a confidential basis, and most interviewees seemed to be candid, it is possible that some relevant information was not communicated.

- Evaluation resources for the goal evaluation did not permit data collection from third parties, such as consumers (agencies who subsequently utilize the personnel trained and the models or programs developed through grant activities). They could have indicated the extent to which these products are meeting their critical needs and are found to be high-quality, useful, and effective.

- The goal evaluation sample is small in proportion to the size of the program, although it is representative of the broad array of Personnel Preparation Program grant activities, and six of the eleven subsamples constituted between 25% and 37% of their sampling pools.

- Conclusions pertain specifically to federal strategies as the Personnel Preparation Program perceived them, and grantees implemented them, in grant activities operating in FY86.

- Goal evaluations do not examine program management procedures per se, but do try to determine whether intended major program inputs (see Figure 1, Column 2) occur at a level that supports program objectives and the federal strategies that are pursued to attain objectives.

Major Conclusions

The generally positive findings presented in the full report of the goal evaluation justify the conclusions that follow, but also indicate areas that could profit from further examination in the next phase of the evaluation.

Strategies Can Be Implemented Through Grant Activities To An Extent That Supports Program Objectives

and

Project Results Support Program Objectives

All projects in the study sample were judged to be implementing (1) the federal strategies that were expected to be their primary emphasis and, in addition, (2) one or more of the strategies associated with other program objectives (and competition foci).

Overall, the nature of quantitative and qualitative evidence of their activities and accomplishments, provided in the full report of the goal evaluation, indicates a good fit with program objectives. (See below.)

Many Project Results Are Well Documented

Nearly 80% of the study sample claimed to be achieving outcomes that pertain to the first program objective, "to produce more qualified personnel." They indicated that their supporting data included: numbers of individuals recruited, trained, and graduated (by level and specialty); number of program graduates who subsequently enter careers in special education in roles and areas for which they were trained; number and nature of the training, technical assistance, and dissemination activities that grantees carried out; and the number and nature of the models and materials they developed.

Over 30% of the study sample reported outcomes and claimed to have data to support the second program objective, "to improve the quality of personnel trained." These data, however, are subjective and qualitative. For example, evidence of model quality, improved competence, and use of state-of-the-art practice in personnel preparation consisted mostly of subjective assessments of "experts," project staffs (who may both design and implement the model during its developmental tryout), and participants' instructors or supervisors. Although soft, such data served the formative evaluation needs of these model and program development projects very well. Moreover, as these three-year grant activities are presently focused, it may not be feasible to expect

grantees to obtain data that would rigorously support this federal program objective.

More than 75% of the study sample reported outcomes that constituted a wide variety of system improvements which would support the third program objective, "to expand the capacity of the system for personnel development." However, much of their corroborating evidence probably will not be provided in final performance reports in a form that makes it feasible for federal program staff to extract and aggregate.

Program Logic and Assumptions Are Valid

In the type of analysis characteristic of a goal evaluation, judgments of the validity of program logic and assumptions, and the plausibility of program objectives, are based on evidence of "congruence," rather than by testing cause-effect linkages. In theory, such an analysis may reveal that what projects in the field are actually attempting in their day-to-day operations is not consistent with expectations at the federal program level. However, in the Personnel Preparation Program's case, (1) a close correspondence was found between expected and reported emphases on federal strategies through major kinds of grant activity, and (2) the results and corroborating data that grantees in the study sample claim to have will support federal program objectives.

In short, no major incongruities with the logic model are apparent from what is actually being attempted through the operating grant projects in the study sample.

Recommendations

The full report of the goal evaluation presents two types of recommendations. One set suggests actions that could be taken immediately to address problems or information gaps the goal evaluation identified. A second set identifies candidate topics that could be examined in the strategy evaluation phase of the study.

APPENDIX B

Personnel Preparation Program Strategy Evaluation
Data Collection Protocol

Personal Preparation Program Strategy Evaluation

Data Collection Protocol

Contents

Cover Page: General Descriptive Information for the Local Unit

Section A. Process Model for a "Hire" (LEA)

Section B. Data Inventory and Reporting (LEA)

Section C. Perspectives and Suggestions (LEA and SEA)

Section D. SEA Interview Guide (SEA)

NOTE: The "respondent" to items in this interview guide was the study team. Interviews were exploratory and unstructured.

Questions that work group members proposed are in italics.

ID 1: _____

AIR Reviewer: _____

General Descriptive Information for the Local Unit

Instructions to interviewer:

Pull the information for this cover sheet from the much more comprehensive information you develop from document reviews and interviews with state and local staffs.

This cover sheet is for our internal use, and should not be construed as limiting the focus of the pilot study in any way. See attached guides.

- **Agency Type**

  _____ LEA

  _____ intermediate educational unit (includes cooperatives)

  _____ other (Specify: _____)

- **Overall SES Level (rough average)**

  _____ High _____ Medium _____ Low

- **Local**

  _____ Urban _____ Suburban _____ Rural

- **Per capita Hires**

  _____ Number of hires

  _____ ADA, ADM, enrollment, other (Specify: _____)

  Expressed as a ratio ____:____

- **Budget, Staffing, Enrollment**

  _____% Budget for special education teaching staff as a percentage of budget for total teaching staff

  $_____, special ed. teachers; $_____, all teachers

  _____% Special ed. teachers as a percentage of total teachers

  N special ed. teachers _____ N total teachers _____

  _____% Special ed. enrollment as a percentage of total enrollment

  N special ed. enrollment _____ N total enrollment _____

- *Are you currently experiencing shortages of special education personnel?*

  _____ *teachers?*

  _____ *administrators?*

  _____ *related services personnel?*

- *Do you have a need in the district for doctoral-level personnel?*

  _____ *administrators?*

  _____ *researchers?*

  _____ *teachers/trainers?*

- *Do you think there are differences between SEA and LEA data that reports needs for personnel?*

- *How <u>exactly</u> do you define <u>need</u> for personnel?*

- *How <u>stable</u> is hiring in your district?*

- *Do you hire in these areas:*

  _____ *infant?*

  _____ *bilingual/bicultural?*

  _____ *transition?*

  _____ *consulting teachers? (i.e., to assist LRE implementation? (Determine local meaning.)*

    - *Do you currently collect data in a manner that would/could provide breakouts by these particular categories?*

    - *Are these data used in your hiring decisions?*

- *What are your personnel needs for mainstreaming/LRE requirements? Do you have needs for additional training?*

A. Process Model for a "Hire"

Use for: LEA interviews and interviews at intermediate educational units

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Protocol Question: **What sequence of steps or events leads to "one hire"?**

Rationale:

To grasp the complexities of using "hires" as an estimate of personnel demand, we must understand the local process for filling a vacancy. This entails knowing what steps lead to "one hire," what situations cause a step to be skipped, who makes what decisions at each step, what information the decisionmaker uses at each step, how and to whom the decisonmaker reports after making the decision, and the timing of decisions.

Sources of Data:

Key decisionmakers for special education personnel hiring, personnel policies, and individuals who are most knowledgeable about special education personnel needs. Examples: Director of Pupil Personnel, Director of Special Education, Budget Officer, Superintendent.

Instructions to interviewer:

There are 3 parts to this section of the interview guide:

- Sequence and Nature of Events Leading to a "Hire"
- Decisions, Data Elements, and Information Flow
- Hypothetical Process Model

Your task is to develop one (or more) generic models that fit the process at this site for hiring someone to fill a budgeted, unfilled vacancy.

Get the interviewee to think through the sequence. You might open the discussion this way: "How do you know when you need to hire more special education staff? I'm going to ask you to think of 'hire' as 'filling a vacancy.' What steps are involved?"

If several generic sequences are possible, document them separately. If you have trouble getting the discussion off the ground, it may help the interviewee if you give an illustrative sequence. (See the Hypothetical Process Model on p. A-4.)

- *How is hiring handled for related services personnel?*

- *How are decisions made to hire uncertified and emergency personnel?*

- *How are administrative decisions made on how many teachers will be hired in any given year? (E.g., "Need" may be the same as previous year, but fewer teachers may be hired due to budget, state appropriation, tax base, etc.)*

Interviewer: Use large oversize sheets to answer these questions.

Sequence and Nature of Events Leading to a "Hire"

1. Identify and describe each step or event.

2. How long does each step take?

3. What problems might typically occur?

4. What situations might cause a step to be skipped? Entail a different step?

5. Having arrived at the last step in the process ("hire"), why would someone NOT be hired at this point?

6. If the process was any different over the last 5 years, ask why. (No need to write down an obsolete sequence, however.)

Decisions, Data Elements, and Information Flow

7. For each step, who is the decisionmaker? At what level?

8. What information does he or she use to make the decision?

   Identify specific data elements now if this interviewee knows them. Otherwise, do so in section B.

9. How and to whom does the decisionmaker report after making the decision?

   Record under Contact Information on next page.

10. If you don't know by now, ask if/how those with hiring authority link up to data. (In LEAs, personnel and data units may or may not interface much.)

Documentation/Evidence for Process Model(s)

Get copies of relevant forms or data summaries if this interviewee has them. Otherwise, do so in section B. Make sure you understand their purpose, terminology, content, and message. Attach and complete a Documentation Control Sheet to each document you collect. (A supply of these sheets is in your folder.)

Contact Information for Process Model(s)

Get names, titles, addresses, and phone numbers for decisionmakers and for persons who are responsible for relevant databases. List them below and cross-reference them to specific steps in particular process model(s) you developed.

Hypothetical Process Model

It may help the interviewee understand what you are after if you offer a hypothetical sequence of steps leading to "one hire." This model is such an example; however, it is probably more rational than the local process. You want reality; emphasize that to the interviewee.

For example, decisions may be made independently, or in a different order. Perhaps all steps are linked to a single decisionmaker, are made at one level, or are made at multiple levels. Other scenarios are possible. For example, up to Step 3, the event could be "Replace person (X) who left or retired." As for "data elements," identify the ones that are actually used in the decision process you identify, because they are imbedded in what determines a "hire."

Sequence and Nature of Events Leading to a Hire		Decisionmakers	Data Elements
Step 1.	Specify the activity or service (A/S) to be provided by the hire.	Building Principal	
Step 2.	Specify the percent of one FTE (Y) required	Building Principal	# of students multiplied by time per student
Step 3.	Specify credentials (C) needed to perform A/S (the activity or service in Step 1).	Director of Special Education	
Step 4.	Get budget authority for hiring.	District Superintendent	
Step 5.	Find an available person (X) with appropriate credentials (C) who has Y percent of time.	Director of Personnel	
Step 6. ("Hire")	Assign person X (with C credentials) to carry out activity or service A/S for Y percent of his or her FTE.	Director of Personnel	

B. Data Inventory and Reporting

Use for: LEA interviews and interviews at intermediate educational units

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Protocol Questions:

- **Of those data elements that are <u>used to determine "hires</u>," what data summaries are <u>available</u> (for 3 to 5 years back, if possible)?**

  These data elements may have been identified in developing the Process Model(s) in section A.

- **What data summaries are available for other quantifiable factors that might need to be known and controlled for if "hires" were to be used as an estimate of personnel demand (need)?**

- **What are the reporting routines for all the above data?**

Rationale:

"Hires" may itself be a composite of several measures. To clarify the definition of "hires" as a measure of personnel demand (need), our inquiry must get beneath the label to identify these data elements.

Moreover, if hires is to be a proxy for special education personnel need, it must correlate with independent measures of special education staffing. We need to find out how "hires" is related to these other measures.

To be most useful to federal level policymakers, information on each variable must be available and economical to retrieve through channels that the federal government can access (e.g., SEAs). Policymakers want data that are accurate and reliable. For these reasons, it is important to determine reporting routines for the data.

Sources of Data:

Persons most knowledgeable about data collection, reporting, interpretation, and management and about special education personnel needs. Examples: Directors of Research and Evaluation, Special Education, Pupil Personnel.

Instructions to interviewer:

The Data Inventory in this section of the interview guide is divided into 7 data categories:

- Hires
- Qualifications of New Hires
- Faculty Attrition
- Vacancies
- Enrollment and Staffing (includes teacher-pupil ratios)
- Budget
- Other

The protocol in each section follows the same sequence, in which you determine:

- what aggregated (summary) data are available
- exactly what the measures are
- the process for producing (reporting) the data

and you:

- obtain and annotate data summaries
- fill out a Documentation Control Sheet for each document or summary you collect

Each of the 7 protocols is two pages long and begins on a new page. (A supply of the Documentation Control Sheets is in your folder.)

- *Do you keep track of the following information, and do you use it in making hiring decisions?*

Data Category: Hires

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. N newly hired special education staff as a percentage of N employed, by category or handicapping condition

___ b. N full-time equivalents (FTEs) required and N FTEs hired, by category or handicapping condition

___ c. Sources of hires (e.g., out-of-district transfers, new graduates of IHEs in state, out of state; continuing but newly qualified personnel)

Ask: If/how is the process different for these different types of hires?

Other (specify below):

___ d. _____

___ e. _____

___ f. _____

- *What information do you break out for "new hires"?*

_____ *type of certification?*

_____ *emergency/temporary status?*

_____ *other?*

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Qualifications of New Hires

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. N certified and N with less than full certification, by category or handicapping condition

___ b. N qualified in one area but serving in another

Other (specify below):

___ c. _____

_____

_____

___ d. _____

_____

_____

___ e. _____

_____

_____

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Faculty Attrition

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. magnitude

___ b. sources of attrition (e.g., retirement, out-of-district transfers, death, changing careers)

Other (specify below):

___ c. _____

_____

_____

___ d. _____

_____

_____

___ e. _____

_____

_____

- *Do you keep track of attrition for:*

  _____ *1st year teachers?*

  _____ *5th year teachers?*

  _____ *10th year teachers?*

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Vacancies

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. N positions budgeted and unfilled, by category or handicapping condition

___ b. N positions recruited for, by category or handicapping condition

___ c. Sources of vacancies (e.g., program expansion, loss of personnel)

Other (specify below):

___ d. _____

_____

_____

___ e. _____

_____

_____

___ f. _____

_____

_____

- *Do you think state-reported CSPD need/vacancy figures seem accurate?*
  (There is some indication that states are underestimating need/vacancy figures.)

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Enrollment and Staffing (and teacher-pupil ratios)

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. unduplicated child count data, by handicapping condition (92-142)

___ b. percentage of handicapped in total school population by type of handicapping condition

___ c. N special education personnel employed, by area and FTE

___ d. teacher-pupil ratios

Other (specify below):

___ e. _____

_____

_____

___ f. _____

_____

_____

- *Is there a state guideline on minimum/maximum teacher-pupil ratios? On using aides? Can these ratios change? Why, and how easily?*

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Budget

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. for special education teachers

___ b. per handicapped student

___ c. funding formula

Other (specify below):

___ d. _____

_____

_____

___ e. _____

_____

_____

___ f. _____

_____

_____

For each "X":

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

Data Category: Other (Specify category here) _____

1. What aggregated (summary) data are available at the LEA level that are used in special education personnel staffing decisions? Mark these with an "X."

___ a. _____

_____

_____

___ b. _____

_____

_____

___ c. _____

_____

_____

___ d. _____

_____

_____

For each "X" in item 1:

2. What exactly are the measures that have been used to produce these data? How calculated?

3. What is the process for producing (reporting) the data summary?

   - Who produces it?
   - When (month)?
   - Level of aggregation (LEA? school? grade? etc.)
   - If/how data's accuracy checked
   - Effort required to produce (staff/time on task)
   - To whom are the data reported?

   NOTE: Some of the above should be confirmed by SEA interview, e.g., when and to whom data are reported.

4. Obtain documentation/evidence. Get copies of relevant forms or data summaries (unless you already got them when you were developing the Process Model in section A). Make sure you understand their purpose, terminology, content, and message.

   - Attach and complete a Documentation Control Sheet to every document you collect.

DOCUMENTATION CONTROL SHEET

Instructions to interviewer:

Get copies of relevant forms or data summaries. Make sure you understand their purpose, terminology, content, and message.

Attach one of these (completed) control sheets to every document, form, or summary you collect.

Who gave you this document (in case you need help with it later)?

Name/Title: Phone:

Mailing address:

Bibliographic Reference (APA Format as per Publication Manual):

What is the data category?

___ Hires
___ Qualifications of New Hires
___ Faculty Attrition
___ Vacancies
___ Enrollment and Staffing (incl. teacher-pupil ratio)
___ Budget

Other (specify below):

___ _____
___ _____
___ _____

Which data elements or measures in this report are most pertinent to the above category?

For what years did you obtain these data?

_____ _____ _____ _____ _____

What breakdowns are provided by the data?

___ by type of personnel
___ by handicapping condition
___ by certification area
other (specify below):

___ _____
___ _____
___ _____
___ _____

C. Perspectives and Suggestions

Use for: LEA and SEA Interviews

Protocol Questions:

- **What conditions affect LEA hiring in important ways, but are not routinely collected as quantifiable data for use in statistical analyses of personnel demand?**
- **What difficulties are likely to be encountered if quantitative data (of the types identified in section B) were required to implement a federal strategy for targeting critical needs? How might these difficulties be addressed?**

Rationale:

Bureaucratic and contextual conditions that may be awkward to quantify can confound "hires" as a valid and reliable estimate of personnel demand (need). Examples are: geographic location; recruitment activities; federal and state policies that affect the ease or difficulty of finding qualified personnel; competitiveness of salaries for new hires; economic conditions; population movement into or out of an area, and so forth. It is important to articulate such "disposing conditions" because they suggest caveats for interpreting quantitative estimates of personnel demand.

Moreover, as a practical matter, policymakers who would use data on "hires" as an estimate of personnel demand must anticipate problems that are likely to be encountered in obtaining and using available data. The channel for data on personnel demand will be the SEA, who in turn must look to LEA sources. Therefore, it is important to get SEA and LEA perspectives on what it will take to obtain good data and to build an adequate data system.

Sources of Data: Same as for sections A, B, and D.

Instructions to interviewer:

Look for opportunities to explore these topics while you and the interviewee are discussing the points in section A (Process Model) and section B (Data Inventory and Reporting).

If you run out of time, get the interviewee's agreement to a follow-up phone interview on those topics that the interviewee is best qualified to address.

---

1. What observations, suggestions and recommendations does this interviewee offer regarding:

   - effective strategies for obtaining reliable data (of the types in section B) from LEAs? from SEAs?

   - potential problems and possible solutions in moving toward a central (national) data system that might require such data?

2. What is the recruitment situation? Specify:

   - How and who recruits new hires to meet personnel needs? *What strategies are in place?*

   - What factors that have helped or hindered efforts to recruit new hires? (NOTE: May overlap with perspectives on topics in the next item.)

   - *Are new teacher incentives offered?*

   - *Is an early retirement option available to open up new positions?*

3. Identify what this interviewee perceives are the most <u>significant influences</u> on the personnel demand situation in the locale (or state), <u>and why</u>. Examples could include:

___ definitions used for handicapping conditions
___ student eligibility criteria for services
___ multi-categorical programming
___ cooperative arrangements
___ contracting for services
___ certification practices
___ competitiveness of salaries for new hires
___ federal or state policies

___ changing priorities
___ economic conditions in locale (or state)
___ geographic factors
___ population movement into/out of area
other (specify)

_____

_____

_____

4. What important <u>future trends</u> does this interviewee anticipate, <u>and why</u>? Focus on trends that are most pertinent to:

- the processes that pertain to "hires" (section A)

_____

_____

_____

- categories of quantitative data that you obtained (section B)

_____

_____

_____

5. In this interviewee's opinion, are there <u>other</u> important considerations that the federal government should take into account in estimating and targeting critical personnel needs in special education? What are they, and why are they critical?

_____

_____

_____

D. SEA Interview Guide

SEA interviews will precede interviews at LEAs (or intermediate units).

Purpose:

Although the pilot study's focus is the local level, a major gateway through which information on critical personnel needs flows to the federal government is the SEA. The quality and utility of information that SEAs can provide is affected by standard procedures that LEAs in the state must follow to produce local data. Therefore, one purpose of interviewing SEA staff is to learn what these standard procedures or requirements are.

A second purpose for SEA interviews is to get a sense of procedures that are standard or required for filling local special education vacancies.

A third purpose is to obtain data linked to individual LEAs that can be used for the statistical analyses in the pilot study.

Sources of Data:

Staff who are responsible for special education personnel policy or for data collection, analysis, reporting, and management, and whose expertise enables them to provide practical insights on what it takes to obtain good data from LEAs and to build a good data system, and on factors that affect hiring, including bureaucratic and contextual factors.

---

1. What are standard procedures or requirements of LEAs (or intermediate units) for hiring special education personnel to fill vacancies?

   NOTE: This will set our expectations for how LEA interviewees may respond to topics in the interview guide for section A (Process Model).

2. What are standard procedures or requirements of LEAs (or intermediate units) use for providing data to the state?

   NOTE: This will set our expectations for how LEA interviewees may respond to topics in section B regarding data and reporting on hires, their qualifications, faculty attrition, vacancies, enrollment and staffing, budget, etc.

3. Identify and describe available data tapes that the SEA uses for identifying special education personnel demand (need) and that link information to individual LEAs. For each tape, ask:

a. By what "name" would a requestor ask for the tape?

b. What sort of information does the tape provide? What specific data elements does it contain?

NOTE: Refer to the Data Inventory in section B if you cannot obtain a description and list from the SEA.

c. On what basis will the SEA make the tape available? If applicable, indicate the cost of the tape.

d. What are reporting routines? Specifically:

(1) By whom/to whom are the data reported?
(2) When (month)?
(3) Level of aggregation (statewide? LEA? grade? other?)
(4) If/how is data's accuracy checked?

4. In the same vein, can the SEA provide data tapes for other information on LEAs that would allow us to determine differences and similarities between the LEAs in the pilot study sample and other LEAs in the state? If yes, cover a, b, c as above, skipping the "Note" under b.

5. Obtain documentation/evidence. Get copies of relevant forms, data summaries, and reports that accompany tables with explanatory narrative. Make sure you understand their purpose, terminology, content, and message.

- Attach and complete a Documentation Control Sheet to each document you collect. A sample is attached as the final page in section B; xerox several copies of it before visiting the SEA.

6. Explore applicable topics from section C's interview guide (Perspectives and Suggestions).

New SEA Questions

- *Are there differences between SEA and LEA data that reports needs for personnel?*

- *How well do LEAs report continuing needs/unfilled positions to state? Can a better job be done to get this information? (Ref: 1982 Fed. reporting requirement)*

APPENDIX C

Pilot Study Interviewees

Pilot Study Interviewees

Study Sample: SEAs (N=2), LEAs (N=10)

- North Carolina State Department of Public Instruction
  A. Craig Phillips, State Superintendent

SEA Interviewees	LEA Interviewees
Fred Baars	James McKethan Cumberland County Schools Fayetteville, NC
Donald E. Ferguson	
Richard Clontz	Joanne Clark Greensboro Public Schools Greensboro, NC
Martha Kincheloe	
M. Engin Konanc	Buddy Coleman Greensboro Public Schools Greensboro, NC
	Sandra Mehalick Guilford County Schools Greensboro, NC
	Jean Averette Pitt County Schools Greenville, NC
	Christina S. Drye Pitt County Schools Greenville, NC
	Sylvia Horne Onslow County Schools Jacksonville, NC

- Wisconsin State Department of Public Instruction
  Herbert J. Grover, State Superintendent

SEA Interviewees	LEA Interviewees
Thomas Stockton	Sharon Grant Milwaukee Public Schools Milwaukee, WI
Laurie Derse	
Ann Kellogg	Helen H. Collins Milwaukee Public Schools Milwaukee, WI
Stephanie Petska	
Dorothy Placide	David Damgaard Wausau School District Wausau, WI
James M. Wall	
	Ken Hobbs D.C. Everest Area School District Schofield, WI
	Laurence Baker D.C. Everest Area School District Schofield, WI
	Norbert F. Kalinosky Southwestern Wisconsin Community School District Hazel Green, WI
	Robert Malsch West Bend School District West Bend, WI
	Peter J. Nannetti West Bend School District West Bend, WI
	Sandra Berndt CESA #06 Oshkosh, WI
	John Kotek CESA #06 Oshkosh, WI
	Ron Olle CESA #03 Fennimore, WI